AMERICAN VETERINARY REVIEW.

NOVEMBER, 1904.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, Sept. 15, 1904.

A NEW METHOD FOR CAUDAL MYOTOMY.—Years ago, Farmer Miles (a few of our readers may remember him) crossed the Atlantic and introduced in Europe his method of operating on ridglings. Some time after, House, the first who made of horse dentistry a specialty, followed him. The former's visit had for result, I believe, that European veterinarians became more daring, and by degrees began to perform castration oftener and oftener, until at last we had the various improved methods of Stockfelth, Bang, Degive and Cadiot. Has the visit of House left any trace? I do not know. But there have been other practitioners who have come to exhibit their skill in their specialty. Somewhere in 1897, I believe there was one in France, who came to introduce subcutaneous caudal myotomy. I did not have the chance to meet him; but I find in the *Annales de Bruxelles* of July evidence of his having been in Belgium, where, according to Mr. Meuleman, who writes an article on the operation, the said American *confrère* had great success and made plenty of money, his fees being 10 per cent. of the value of the animal he operated upon. These financial successes and the good results obtained decided Mr. Meuleman to resort also to the subcutaneous method instead of the old classical way of Brogniez. However, as the operation performed by the American, and with which we are all familiar, did not seem to satisfy him, he modified it, and it is this modification which forms the subject of his report. He used a dermotome to puncture the skin and the caudal aponeurosis, a myotome to

divide the muscles; he closes the wound with pin sutures and applies a dressing of iodoformed collodion. The punctures of the skin and the aponeurosis are made *on the internal border* of the muscle. Of course the muscles are divided one after the other, and from inwards outwards, if I understand well the description given by the author. By this method no complication is said to occur, no after-cares are required, hæmorrhage is of no importance, suppuration rare, the use of the pulley is applied only every other night. In conclusion, the author says that out of 300 horses he has operated upon in this way he has yet to see the first accident resulting from the operation. It is certainly a new method to perform caudal myotomy, but I doubt if it can be considered superior to the process that exists in America, and which was described by Wichman of Berlin, some fifty years ago, or even that of Brucker, with which a curved bistoury was resorted to instead of the straight myotome that is used in Wichman's.

* * *

PATHOGENY OF OSTEO-ARTHRITIS.—The *Revue Générale de Leclainche*, in the July issue, publishes a study on the "pathogeny of osteo-arthritis" of horses by two army veterinarians—MM. Vivien and Augustin—study which is a complement to the many studies and various discussions which have taken place lately in the veterinary world of the Continent. Let us glance over this excellent article.

Under the general name of *osteo-arthritis*, it has been accepted lately to consider a certain number of diseases of joints of horses, consisting in a dry inflammation of the diarthrodial surfaces, especially the arthrodias, developing slowly, and accompanied by bony neo-productions in the neighborhood of these surfaces, with ankylosis—that is, anatomical as well as physiological suppression of the articulation. For some, arthritis and its manifestations is the result of some peculiar conditions; for others, they play a primordial part. For those, the arthritic development dominates and imposes all the processes, and it is for that that they have accepted the name of *osteo-*

arthritis, to which they have added the qualification of *ankylosing* and *deformans*, according to the resulting lesion.

Osteo-arthritis develops on arthrodial, or at least on diarthrodials having very limited motions. The true denomination is reserved to articular diseases which end in ankylosis, which is only possible when the articular displacements are very limited. Diarthroses with free motion generally do not present the lesions which are found in planiform joints. The mode of development is the same; no matter in what joint, simple or complicated, it is observed, so long as the conditions of required fixity are present. Osteo-arthritis in the tarsus is the same as that in the carpus, the interphalangeal joints or the vertebral arthrodias; there is no difference in the stages, in the principal manifestations; the secondary points only differ. The study of the authors is made in the osteo-arthritis of the carpus, where it is most common and most certain in its progress.

* * *

The most complicated joint of the equine machine is certainly the hock; it is also the one which presents the most frequent and various alterations. All the articulations which compose it are liable to arthritis; none are exempt, and if the scaphoido-cunean is most frequently diseased, the intercunean, cuneo-metatarsal, cuneo-cuboid, scaphoido-cuboid, and scaphoido-astragalean are also affected, in a frequency represented here by the rank in which they are named. Tarsal lesions are essentially proteiform: bony growths, ankylosis without deformities, marginal or central cartilaginous ulcerations of various shapes, simple ecchymosis—all these are observed, varying at the same time in their exact seat, their collecting together and in their extent. What is frequent, however, is that several arthrodias may be affected simultaneously; what is constant is, that the same lesions, with a certain degree of development, are observed on the surfaces in contact, lesions which are about equal in importance and similar in form; and what is also constant is that, symmetrically on both hocks and in the same arthrodias, the pathological manifestations are reproduced almost identically, except

a difference in the severity. And it is not rare to observe in one hock, all the stages of the complete process of the disease, stereotyped, so to speak, on the various arthrodias.

What are those stages and how are they observed? The first perceptible changes are only a *simple ecchymosis*, varying in extent, to be detected only on fresh bone. But the *cartilaginous desquamation* may be the first striking change; the ecchymosis has been overlooked. The cartilage has lost its brilliancy; it is rough, slightly depressed—this cartilaginous decortication is the first step towards *ulceration*. After a certain time the cartilage has disappeared; the borders of the articulation begin granulating, osteophytes appear on the margins; they unite from one bone to the other—*ankylosis* has taken place. To these troubles, others soon appear, which immobilize the joint. Their variability is very great.

What is the nature of this ankylosis? It is false; that is, merely functional suppression of the joint, or an anatomical destruction. Examination of various ankyloses show that the union between the bones may not appear externally, that it is deep and invisible, or again that the articular margins have been made one, and also that the articular surfaces are united either entirely in their whole extent or only between portions of these. But other conditions may also take place; the inflammation may extend, the process spreads outward and gives rise to the projection of neoformed tissue, and yet, while this hyperplasia is connected with the arthritic development, it does not necessarily complete it; generally it is the ultimate term of ankylosis.

* * *

After a long consideration upon the histology of diseased and ankylosed joints, the authors conclude: The pathological process, which ends in the destruction of the inferior tarsal arthrodias, is a complex evolution, not so much by its nature as by the manifestations it gives rise to—it is a polyarthritis, starting by an inflammatory state of the tarsal bones and having its developing centre in their articulations, and ending in their

union and their deformation. It is, in fact, as said by Joly and Eberlein, a succession of osteitis, arthritis, ankylosis, exostosis.

But, then, what becomes of the old idea, of spavin considered so long as a morbid entity? It appears now only as an epiphonema, scarcely a syndrom. The theory of the etiology, viz., the accidental ligamentous hyper-extension, has become insufficient to explain the facts rationally. This hyper-extension has no direct part to play; its action is only secondary and in no way does it modify the general development of the disease. How could it be conceived that such accidental cause, localized to a ligamentous hyper-extension, would promote in other planiform articulations such changes as those that are observed?

* * *

KOCH'S THEORY EXPLODED BY THE FINDINGS OF THE ROYAL COMMISSION.—The well-known theory advanced by Prof. Koch on human and bovine tuberculosis has received another setback by the *interim* report of the Royal Commission on Tuberculosis which was appointed in England, a report which I find in the *Journal of Comparative Pathology and Therapeutics* (June, 1904).

The commission was appointed to inquire and report with respect to tuberculosis: (1) Whether the disease in animals and man is one and the same; (2) Whether animals and man can be reciprocally infected with it; (3) Under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favorable or unfavorable to such transmission. "The greater part of these questions were directed to the view which had been expressed that the bacillus which gives rise to tuberculosis in the bovine animal is specifically distinct from the bacillus which gives rise to tuberculosis in the human being, and that, therefore, the presence of the bovine bacillus in the milk or flesh of the cow consumed as food by man is not to be regarded as a cause of tuberculosis in the latter."

The Commissioners were Sir Michael Foster (M. P.), Prof. G. S. Woodhead, Sidney Martin, McFadyean and R. W. Boyce.

To reach their result the plan of taking evidence and collecting opinions was laid aside for the present and experimental investigations were decided upon.

The first line of inquiry was this:

"What are the effects produced by introducing into the body of the bovine animal (calf, heifer, cow), either through the alimentary canal as food, or directly into the tissues by subcutaneous or other injections, tuberculous material of human origin—*i. e.*, material containing living tubercle bacilli obtained from various cases of tuberculous disease in human beings, and how far do these effects resemble or differ from the effects produced by introducing into the bovine animal, under conditions as similar as possible, tuberculous material of bovine origin—*i. e.*, material containing living tubercle bacilli obtained from cases of tuberculous disease in the cow, calf or ox?"

This meant a great deal of work. More than 20 different strains of tuberculous material of human origin (that is, taken from more than 20 cases of tuberculous disease in human beings—viz., sputa, pulmonary, mesenteric, abdominal, bronchial, cervical, glandular, and articular tuberculosis); and with these 20 strains experiments were carried out. With what results? With seven strains, the introduction of the tuberculous matter gave rise at once to acute tuberculosis of remarkable severity. With the balance the bovines which received the first introduction were less extensively diseased. In two instances only the tuberculous disease remained limited to the spot where the material had been introduced. In most, however, the infection spread from the seat of inoculation along the lymphatic glands with the appearance of a small amount of tuberculosis in the lungs and spleen. Inoculation of material from these bovines to other animals, bovines or guinea-pigs, have so far given positive results with the five strains remaining. Observations are still going on.

Careful comparison has been made between the disease thus set up by human material and that due to material of bovine origin, and so far "it has been found that the one, both in

its broad general features and in its finer histological details, to be identical with the other."

No character has been found by which one could be distinguished from the other and post-mortem records can be shown where the accounts taken of the lesions in bovines affected with human material might be used as typical descriptions of ordinary bovine tuberculosis.

Up to the time of making the report, more than 200 animals had been experimented upon, and the detailed report of the experiments will be made later on.

The conclusion for the present is: As long as the tubercle of human origin can give rise in the bovine to tuberculosis identical with ordinary bovine tuberculosis, it seems clearly shown that it would be unwise to frame or modify legislative measures in accordance with the view that human and bovine tubercle bacilli are specifically different from each other, and that the disease caused by the one is a wholly different thing from the disease caused by the other.

* * *

HONORS FOR AMERICAN VETERINARIANS.—I am rather late if, in closing this chronicle, I give our readers the news of honors given to two American veterinarians by one of the veterinary societies of France; my absence from Paris, and having read but little of late, are my excuses.

At the meeting of the Société Centrale de Médecine Vétérinaire of Paris, held in July, Dr. D. E. Salmon, of Washington, was elected foreign associate member, and Dr. de Schweinitz, of Washington, as foreign corresponding member.

I send our worthy colleagues and friends my sincere congratulations. A. L.

VETERINARIANS FOR VETERINARY WORK.

As years come and go, and as the members of the veterinary profession advance in the educational standard, and broaden in their knowledge of all that legitimately appertains to their branch of medical science, they step forward to shoul-

der the responsibilities which their qualifications have entailed. There has not been an instance where they have not proven equal to the exactions of their new fields, nor one where they have receded from their position and have been replaced by others through their incompetency. The wisdom and justice of this course is self-evident and has redounded to their benefit and that of the country. Many States have passed laws placing veterinarians in charge of the diseases of live stock, without, however, giving them a free hand, having laymen or men with a knowledge of human medicine only as executive heads of the departments, in most instances stultifying the work of the veterinarians through their lack of practicability in dealing with animal diseases. At the October meeting of the Passaic County Veterinary Medical Association, which was in the nature of a banquet tendered by the President, Dr. Wm. Herbert Lowe, the condition of affairs in this respect in New Jersey was the subject of reference by a number of the speakers, and there was a ring to the determined utterances which carried conviction that the profession in that State would not rest until a central department of animal industry, or a live-stock sanitary commission, *under veterinary direction*, was a law of the State. There is no question but that such a movement is urgently demanded by the conditions existing in New Jersey, as the diseases of live stock are so distributed between the Board of Health and the Department of Agriculture, that practitioners are unable to obtain anything like satisfaction when endeavoring to have outbreaks of disease investigated, while responsibility is shirked by the one and shifted by the other.

Conditions are much better in Pennsylvania, where the State Live Stock Sanitary Board, while composed largely of others than veterinarians, yet the personality of the State Veterinarian, backed up by wise provisions in the law creating the Board—framed under the guidance of veterinarians—has enabled the veterinary idea to predominate in the enforcement of questions with which it deals. So, too, the recent meat and milk inspection law of Montana, framed under veterinary supervis-

ion, through knowledge of conditions and remedies, and being applied by veterinarians under veterinary direction, is proving a boon to the breeders and consumers, and reflecting the greatest credit upon our branch of medicine. Not less striking as an example of the value of veterinarians in charge of both the executive and professional sanitary work of States is the case of Minnesota, where the State Live Stock Sanitary Board has veterinarians directly in charge, doing and directing the work. There are two veterinarians on the Advisory Board; there are also the Secretary and Executive Officer, a veterinarian who is in full charge, and handles and accounts for all funds; a field veterinarian in constant service, and a director of the new bacteriological department, also a veterinarian, with a second field veterinarian in prospect for the near future.

Such instances as noted above should be an inspiration for the profession in other States, and they should strive to secure the great benefits that are bound to flow from such conditions.

The most prominent example of the need of such laws is New York State. With its live and progressive State Association, its accomplishment should be an easy matter. The greatest factor in securing wise laws of this nature is a leader with determination and persistency.

MAGNIFICENT ENDOWMENT FOR VETERINARY EDUCATION.

The Veterinary Department of the University of Pennsylvania has been blessed by an unnamed philanthropist, who has donated to its building fund the princely sum of one hundred thousand dollars. The heroic devotion of her faculty, which has worked earnestly and persistently, without other reward than their love and pride for their profession, in the hope and belief that their self-sacrificing struggles would bring to their aid some such succor as this announcement records, is worthy of all praise, and we extend to them and to the profession of which they are such worthy examples, our hearty congratulations, coupled with the hope that, having secured the entrance

of the wedge, many other similar events may drive it deeper and deeper until the great University shall have a veterinary school the peer of any in all the world.

The conditions and purposes of the donation are well told in the announcement made by Provost Harrison at the opening-day exercises of the University of Pennsylvania, on Friday, September 20, which was as follows:

"I have a most agreeable announcement to make to you, one for which we have hoped for a long time. The most important gift to the University since the beginning of its new year upon September 1 has been made toward the endowment of the department of veterinary medicine, in the sum of $100,000, the income of which is to be used solely for the benefit of this department. I believe this is the largest sum contributed to this special object—important as it is—ever made for the purposes of veterinary medicine in this country. I am not permitted to announce the name of the donor, but that donor will know how grateful we are for this munificent and humane benefaction. It is a most hopeful and inspiring gift, and I announce it to you with enthusiasm, hoping and believing it may be followed by proper buildings, both hospital and laboratory, where you may have the same advantages which your fellows in medicine and dentistry now so fully enjoy."

PLAGIARISM WITH A VENGEANCE.

It has been said that "imitation is the sincerest flattery," but a recent number of a little sheet bearing the pretentious title of *The International Veterinary Review*, and edited and published by Dr. L. L. Conkey, Grand Rapids, Mich., has surely gone the limit. The AMERICAN VETERINARY REVIEW has no objection whatever to his making copious clippings from its pages, crediting this journal for them, because his readers will thus be supplied with very much better material than they have been accustomed to receive; but when the editor of our Western contemporary removes our editorial department bodily and prints it as his own, it does seem that the usual editorial courte-

sies have been outraged and sufficient cause established for a vigorous protest. We would probably have allowed the matter to pass unnoticed, and ignored Conkey's effrontery, had he not republished Dr. Liautard's "European Chronicles," signed with his well-known initials, thus conveying the impression that the senior editor of this journal had written the articles specially for the *International Review*.

We repeat that the *International Review* is welcome to reprint articles found in the AMERICAN VETERINARY REVIEW, providing it gives credit for them, for, judging by the few others that it contained, its readers will be gainers thereby, and the cause for which we labor will be correspondingly advanced. At the same time the fraud of adopting our articles and editorials as original with it will not be tolerated.

THE "VETERINARY JOURNAL" (England) publishes monthly a list of "Communications, Books, Journals, etc., Received" —presumably since its last issue; but, judging by the information contained in its enumeration, the publishers must have had the list stereotyped into a solid block some years ago, for there has not been a change in it within the memory of some middle-aged veterinarians. Regularly every month it states that it receives the *Journal of Comparative Medicine and Veterinary Archives*, although the Philadelphia *Journal* ceased publication in May, 1903. The REVIEW is never received, according to the list, albeit it is mailed regularly every month, and we frequently observe quotations from it in the pages of our esteemed contemporary.

WITH the present number Prof. Leonard Pearson, the distinguished State Veterinarian of Pennsylvania, and Dean of the Veterinary Faculty of the University of Pennsylvania, becomes a collaborator of the REVIEW, and we welcome him to our staff with enthusiasm, congratulating our readers upon the acquisition of one whose brains and loyalty to his chosen profession have done so much for its advancement.

ORIGINAL ARTICLES.

HÆMORRHAGIC COLITIS OF THE DOG DUE TO INFECTION WITH THE TRICHOCEPHALUS DEPRESSIUSCULUS.

(TRUE WHIP WORM.)

BY FRANK H. MILLER, D. V. S., VETERINARIAN TO WESTMINSTER KENNEL CLUB, NEW YORK CITY.

In again availing myself of the courtesy of the publishers in allowing me space in the REVIEW, I would perhaps at the very outset be pardoned for selecting a subject which may, possibly will, at first glance appeal to many of your readers as being of immediate concern to those only, as may be particularly interested in canine pathology, were it not too painfully true that the entire subject of helminthology, and especially that portion of it with which we as veterinarians are thrown into almost daily contact, not only requires much closer study than it usually receives, but also our united efforts in the matter of recording our experiences and observations, without which we can scarce hope for much beyond the most empirical application either of remedies or prophylactic measures calculated to mitigate the ravages of the entozoa, which cause such heavy annual sacrifices in the animals with whose care we as veterinarians are commonly charged. There is perhaps no branch of comparative medicine which is of greater importance in the question of conserving animal life, and certainly none which so perfectly corresponds to the more or less empirical application of medicine of fifty years ago.

We, generally speaking, are all too prone in the face of certain evidence to "hit off" a diagnosis of "round worms" and quite as spasmodically fly one of the "cut and dried" remedies after it, without stopping one moment to consider the prime importance of determining beyond question the exact kind of parasite we are combatting.

I take into full consideration the general efficacy of many of

the remedies used to kill or expel the so-classed "round worms," but this consideration should make it absolutely impossible for us to lose sight of the fact that there are worms of this very type frequently invading the tract of animals which are practically invulnerable to such remedies as hold the highest rank as vermifuges and vermicides when administered in heavy, even tonic doses, and use them as we may, either from the point of personal convenience, or from less commendable reasons, we are nevertheless, practicing a form of medicine neither scientific nor successful, for that is most successful which goes direct to the mark.

In venturing the following remarks regarding the invasion of the dog's large intestine by that one of the Trichotrachelide, known as the *Trichocephalus depressiusculus*, I would be allowed to present the subject mainly from the view-point of personal clinical observation in treating dogs, coupled with a careful regard for the comparatively little which has from time to time been recorded concerning the Trichotrachelidæ in general; and if my data be, as it undoubtedly is, somewhat scanty, it cannot altogether fail of interest, if for no other reason than that it may show how difficult, indeed at times impossible, it may be for us to harmonize the practical side of questions medical, with the recorded statements of literateurs of both human and comparative medicine, who in respect to this particular parasite devote very scant space to its study clinically and biologically, and agree almost as a unit as to its small potentiality as a disease-producing element within the human or animal body.

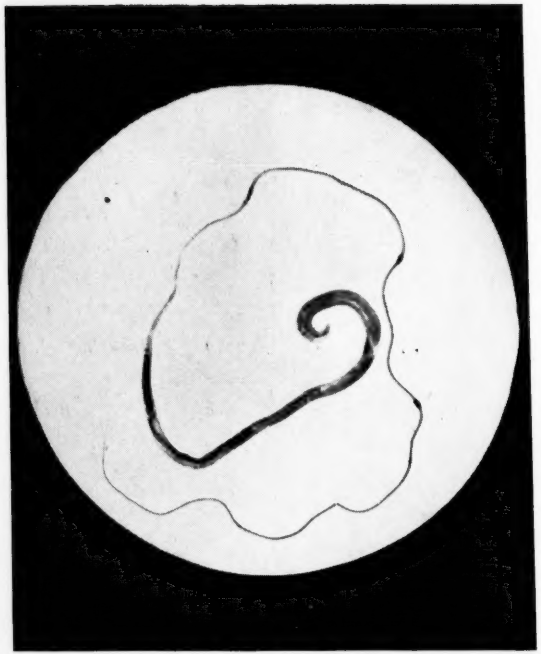
Being, therefore, a truly clinical matter, I cannot perhaps serve my purpose more easily and expeditiously than by placing before the reader the history of a few cases of this infection which it has been my fortune to treat within the past few months, for obvious reasons verifying the same with exact dates and addresses.

Case I.—Called Feb. 6th to examine three-year-old male bull terrier, owned by Wm. B——, 170 East 72d Street, New York, of which the following history was obtained: Animal,

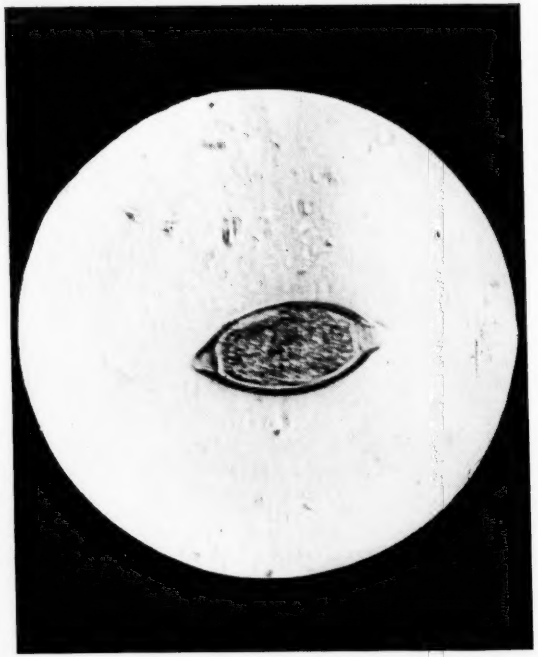
which was of the heavy weight order, was bred and carefully reared by owner in his residence, had always been robust and of more than ordinary spirit and strength, easily nourished and conditioned. About ten days previous to this examination was noticed to lose spirit, becoming very sluggish or weak with unsatisfactory appetite, some meals being entirely refused. Bowels somewhat irregular, slight diarrhœa alternating with constipation, which symptoms, coupled with tendency to sleep much, caused me to prescribe an entire change of diet, with tonic doses of elixir calisaya, pepsin, bismuth and strychnine.

Feb. 23d, dog's condition having steadily grown worse, was called, finding marked emaciation, with loss of strength, and showing a tendency to hæmorrhagic bowel irritability. Closer examination revealed a normal temperature and respiration, with distinct heart impulse, the pulse being slow and of fairly good volume, but distinctly regularly-irregular in rhythm. He was very dis-spirited and showed a dull lusterless coat, inclining to the erect, eyes less prominent than usual, breath offensive, with red marginal zone around the teeth at the gum-line. Anæmia was now becoming well defined in all the mucous membranes. By appointment, the dog was presented at office for closer examination, including examination of the urine, which, beyond being of increased specific gravity and containing much indican, was substantially normal. Microscopic examination of the stools, which were blood-tinged, showed goodly, but not great, numbers of the highly distinctive spindle-shaped eggs of the *Trichocephalus depressiusculus*, along with great numbers of red blood cells in all stages of destruction, as well as much mucus.

Treatment.—Since the patient had been most thoroughly treated by the owner at various times with one of the commonly-used vermifuges, I caused him to be subject to eighteen hours' fasting, at the end of which time I gave an hypodermatic injection of one grain morp. sulph., plus one-sixtieth grain atropin sulphate, which, as is usual, caused emesis, promptly followed by the desired state of somnolence, when fifty drops oleo-resin



TRICHOCEPHALUS DEPRESS., x 15.



EGG TRICHOCEPHALUS DEPRESS., x 500.

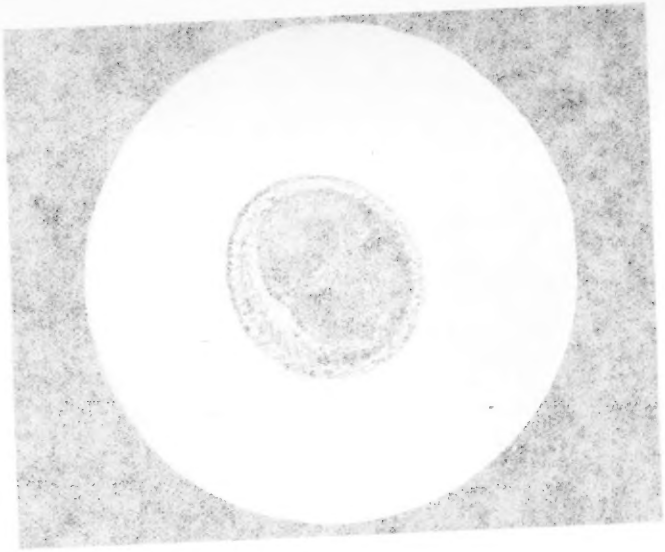
EGG ASCARIS LUMBRICOIDES, x 500.

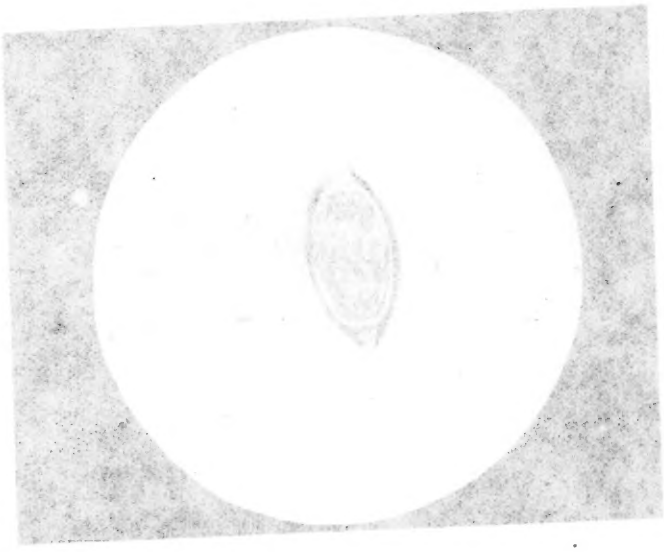
...ium was given, thoroughly mixed in one ounce each of ... oil and glycerin. Light food was offered, but refused late ...ening of this day, but was taken with ever-increasing ... when the stupor had passed away on the following day. ...scopic examination of the stools failed to give evidence of ... of the worms after the second day. Diarrhœa cleared ...mptly and flesh was taken on at a truly marvelous rate. ...ensorium became as clear as before, and in ten days the ... seemed to have again reached the climax of health, ... has been retained in full to date.

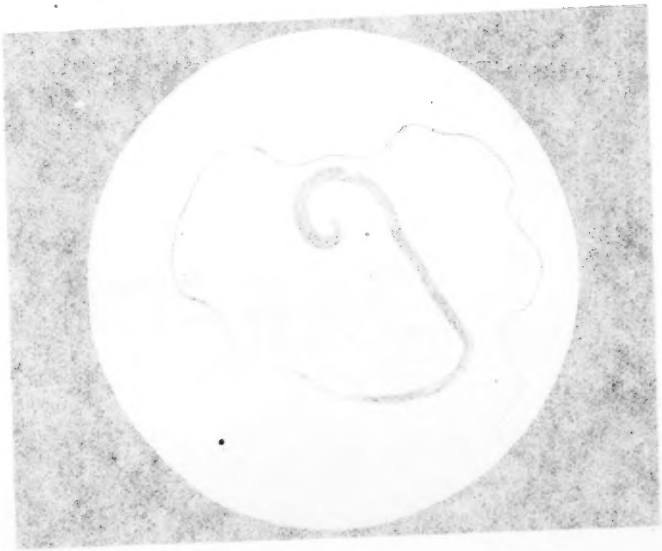
...*e H.*—Small quantity of stool from adult female French ... dog, about two years old, was sent me by R. H. H., No. 28 ...rst Street, this city, upon April 2d, with the request that ... carefully examined. The material was accompanied by ...nformation that this particular animal, which had always ...igorous in all particulars, had suddenly begun to lose ... and was showing diarrhœa, the discharges being blood- ... The dog being from a kennel where the administra- ... of good vermifuges is more or less a matter of routine ...ce, as might be surmised the microscopic examination ... no trace of ordinary worms as the ascaris, but several ... the *Dispharagus* were revealed, along with much ... and fresh and broken-down red blood cells.

...ing to the fact that the dog was a noted one, under ...ngagements to compete at an important show within the next ...days, we decided it would be injudicious to diet and further ...e her weight in proceeding against the parasites before her ... to the city.

...n April 9th, animal was reported in extremely bad con- ..., having continuously gone back in weight under good ...ing and palliatives until her life appeared in jeopardy. All ...ptoms were much aggravated. There was a perfect loss of ...tite with great emaciation under the frequent and copious ...harge of bloody mucous stools. Great weakness, anæmia, ...apathy, were cardinal symptoms. No time was lost in ...ing and owner was instructed to administer 25 drops oleo-







aspidium was given, thoroughly mixed in one ounce each of castor oil and glycerin. Light food was offered, but refused late on evening of this day, but was taken with ever-increasing relish when the stupor had passed away on the following day. Microscopic examination of the stools failed to give evidence of the ova of the worms after the second day. Diarrhœa cleared up promptly and flesh was taken on at a truly marvelous rate. The sensorium became as clear as before, and in ten days the patient seemed to have again reached the climax of health, which has been retained in full to date.

Case II.—Small quantity of stool from adult female French bull dog, about two years old, was sent me by R. H. H., No. 28 East 21st Street, this city, upon April 2d, with the request that it be carefully examined. The material was accompanied by the information that this particular animal, which had always been vigorous in all particulars, had suddenly began to lose flesh and was showing diarrhœa, the discharges being blood-marked. The dog being from a kennel where the administration of good vermifuges is more or less a matter of routine practice, as might be surmised the microscopic examination showed no trace of ordinary worms as the ascaris, but several ova of the *Depressiusculus* were revealed, along with much mucus and fresh and broken-down red blood cells.

Owing to the fact that the dog was a noted one, under engagements to compete at an important show within the next five days, we decided it would be injudicious to diet and further reduce her weight in proceeding against the parasites before her return to the city.

On April 9th, animal was reported in extremely bad condition, having continuously gone back in weight under good nursing and palliatives until her life appeared in jeopardy. All symptoms were much aggravated. There was a perfect loss of appetite with great emaciation under the frequent and copious discharge of bloody mucous stools. Great weakness, anæmia, and apathy, were cardinal symptoms. No time was lost in dieting and owner was instructed to administer 25 drops oleo-

resin aspidium in one and one-half ounces equal parts castor oil and glycerin, which caused almost immediate vomiting, which cleared the stomach. I visited her personally and administered hypodermatically ½ grain morph. sulph., plus $\frac{1}{120}$ grain atropine, which caused the usual vomition, followed by depression, when she again received at my hands a repetition of the aspidium, oil and glycerin, which was perfectly retained. No examination of the stool was made until one week had elapsed, at which time no single trace remained of the infection, nor were blood cells in evidence, and the mucus also had in great measure disappeared. She had during this week made a most rapid recovery, both in matter of appetite and gaining of flesh and spirit, which appear to have become almost normal at the end of one week. Cure was complete and health remains good to date.

Case III.—Small male Pomeranian dog, about four years of age, owned by Mrs. A. P. C., No. 9 East 53d Street, N. Y. City, was presented for examination May 10th, with a record of past good health up to a very recent date, when he developed a troublesome mucoid diarrhœa, which had a distinct hæmorrhagic tendency, accompanied with rapid loss of flesh and great weakness. Inquiry convinced me that the regimen had been quite rational. The temperature was 103½, pulse rapid and of poor volume. Cardiac impulse well defined over both sides. The body was emaciated and the skin lacked resiliency. The eyes, while bright, distinctly betrayed suffering. There was slight tenderness of the intestines on palpation. Anæmia was in evidence and the red zones about the teeth were present. Breath bad. Patient had been freely dosed with some of the common dog remedies, including buckthorn. A smear of the rectal contents, which were mainly blood, examined microscopically, revealed the ova of *T. depressiusculus* in numbers.

Patient was dieted for 18 hours, at the end of which time I gave ⅓ grain morph. sulph., plus $\frac{1}{120}$ grain atropine hypodermatically, and as soon as the stomach had been cleared and again quiescent, followed it by 15 drops oleo-resin aspidium in

one tablespoonful each of warm castor oil and glycerin. The animal slept quietly for about 12 hours, at the end of which time a small quantity of water was taken, soon followed by discharge from bowels. Was quite bright on following morning and partook of food with some relish. Stools passed during the night contained two or three of the *T. dep.* and some blood.

Improvement in all respects after this treatment was rapid and very satisfactory, when the patient was returned upon the 16th, but the microscope showing one or two eggs of the parasites still in evidence, he was again prepared and under the same precautions received 22 drops of the aspidium plus oil and glycerin. The recovery was rapid and the animal was discharged as cured on 23d.

Case IV.—This case is interesting as being more or less representative of several cases which caused devastation in the kennel of toy dogs owned by Mrs. D., No. 29 North Terrace Avenue, Mount Vernon, N. Y., where the first evidences of disease appeared about Jan. 1st in an adult pug shortly after his introduction to the kennels. Case IV. was autopsied at Mrs. D.'s request Feb. 15th. The animal, a small Yorkshire terrier, about four years old, was in a state of marasmus, with scurfy skin and unkempt coat. All the organs were normal in texture, but anæmic. There was an excess of peritoned fluid, but no traces of peritonitis. The large intestines were wasted in appearance and the color showed a diffuse inflammation; the mucous membrane was perceptibly thickened and perforated through and through with numerous examples of the *T. dep.*, which were present in great, I may well say almost incredible, numbers, some appearing to be nearly one-third imbedded in the lining of the intestine.

It may be stated that these cases (about ten in all) all appeared in rapid succession, and were said by the owner to have been ushered in by great skin irritation, but this was undoubtedly due to sarcoptic mange, which was prevalent there. One of the most popular and efficient vermifuges upon the market was used upon these cases by the owner without results, and

was thought (probably erroneously) to have been responsible for the hæmorrhagic diarrhœa which supervened soon after which their conditions began to deteriorate. In this dog examined (Case IV.) there was no evidence of parasites beyond the *T. dep.* and is accounted valuable as giving evidence of how this parasite can at times and under favorable circumstances assume decidedly epidemic manifestations.

I take the liberty to present photo-micrographs from this case of the *T. depressiusculus*, as well as its egg, giving one from the common round worm, to exemplify the great contrast in appearance of the two under the microscope. While the yearly microscopical examination of hundreds of samples of excreta from the dog in diagnosing has fully convinced me of the relative freedom of our dogs from this particular worm as compared with others of the nematodæ, notably the strongylidæ and ascaridæ, the grave and urgent symptoms which they have given rise to in these cases, must of necessity cause me to rank them in future among parasites of the very first clinical importance in this animal, since it evidently does not require an invasion in great numbers to produce the symptoms I have tried to describe, but owing to the great penetration of their long and thread-like head and neck through and through the mucous membrane, a very few examples are capable of causing great irritation and hæmorrhage and rapidly put the animal's life into the balance.

It is of interest to note that the symptoms set forth in these cases all appeared suddenly, and that the animals so undermined in health were not puppies, neither were they such growing animals as most frequently are subject to worms, but in all cases adult animals of considerable age, and, with the exception of Case IV. were animals bearing all evidences of good health before the attack began, and yet they seemed to have little or no resistance, and all would undoubtedly have died, and that speedily, had not the microscope revealed the true state of affairs in time, and without which I maintain a sufficiently accurate working diagnosis in these diseases would have been absolutely impossible.

While much darkness still surrounds the biological aspects of the *Trichocephalus depressiusculus*, from ample evidence, we are, I think, warranted in assuming that this worm infects by the egg, and only after the same has undergone a certain development entirely outside the body under suitable condition of heat and moisture, condition which, however, prevail in nearly all climates during the summer months. This sojourn outside the body appears to be a long one, usually extending over many months, and the development of the ova is probably up to, and possibly through the larva stage, before infection becomes possible.

Duvaigne and other noted investigators are not in strict accord as to the degree of development necessary, but do agree that the ova, even under the most suitable conditions, are rarely sufficiently developed to infect before the sixth month after they have gained the outside world, and this time may even be prolonged in cold climates to one year, a fact of great interest since it shows how great is the vitality of the ova in itself to live so long under any condition, and one of much concern in combatting the disease by outside disinfectants, and in dwelling upon it we should think of the longevity of the ova of others of the intestinal parasites, notably the *Dochmius duodenalis* and make our great battle in the direction of proper sanitation and disinfection of the stools, which should be executed only along lines of real and not imaginary efficiency.

Regarding the successful issues in the treatment of the above cases, I can only say that aspidium appears to be a reliable remedy, provided the animal retains sufficient quantities of the agent, and as far as my experience teaches me, is a comparatively safe drug in adult animals without any corrective, and exceedingly so when given, as in these cases, in conjunction with morphine and atropine, which not only render it possible for the animal to retain it, but at the same time cuts out some of its more objectionable qualities without reducing its values as a vermifuge.

A FEW DIFFERENTIAL CHARACTERISTICS IN THE ANATOMY OF SOME OF THE LOWER SPECIES COMPARED WITH THAT OF MAN.

WITH PASSING ALLUSIONS TO ANALOGY AND HOMOLOGY.*

By W. H. Dalrymple, M. R. C. V. S., Louisiana State University, Baton Rouge, La.

Mr. President and Members of the Louisiana State Medical Society:—When invited by Dr. C. H. Irion, chairman of the Section on Anatomy and Physiology, to assist him in the work of that Section by preparing a paper appropriate to the occasion, it at once occurred to me that the presentation of a few of the differential characteristics in the anatomy of some of the lower species, more especially those more familiarly known as the domestic animals, compared with man, might prove of interest to the members of the Society, as I know, from personal experience, that the student of human medicine is not always required to possess a very profound knowledge of comparative anatomy, and, therefore, cannot be presumed to be very familiar with the differential characteristics when compared with that of the human subject. The chief difficulty, it seems to me, in recognizing analogous and homologous organs, and their positions, in man and in the lower animals, especially to those conversant only with human anatomy, is the difference in position assumed by each individual.

For example: I was once asked by a physician in the country to solve the difficulty in the operation of passing the catheter in the female of the genus Equus, it having baffled his ingenuity to locate the meatus. Realizing at once the cause of the trouble, I suggested that the position of the human female and that of the mare, under such an operation, were simply reversed, and that, if he would change the position of the quadruped into that of the biped, or imagine the reverse, the difficulty would most probably be solved. It is not, therefore, the difference in

* Reprinted from the *New Orleans Medical and Surgical Journal.*

relation to surrounding structures in such an instance, but simply a difference in the natural position assumed by the different individuals.

I might state here that when using the term analogy I refer to similarity of function only, and when speaking of homology, similarity in structure is meant.

One rather striking instance in analogy is that found in the *membrana nictitans* found in connection with the eye of the horse and ox, and the digits on the pectoral limb of man. This, at first sight, may appear a little far-fetched, but if we look upon each as an organ by which to clear the eye of offending bodies, the analogy becomes more apparent. A short description of this membrane, or third eye-lid, as it is sometimes termed, may be necessary here, as well as interesting, I hope, as it is developed only in mammals having pronatory and supinatory actions of their thoracic limbs. The following is from Chauveau, the eminent French comparative anatomist: "This organ is placed at the inner canthus of the eye, whence it extends over the eye-ball to relieve it from foreign bodies which may fall upon it. It has for its framework a fibro-cartilage—reticulated or elastic—irregular in shape, and nearly prismatical at its base, and thin anteriorly, where it is covered by the conjunctiva; it is continued behind by a strong adipose cushion, which is insinuated between all the muscles of the eye-ball, and to which it is loosely attached. No muscle directly concurs in the movements of the body; they are entirely mechanical. When the eye is in its usual position, there is only perceived the fold of conjunctiva that terminates it in front; the remainder is concealed in the fibrous case of the eye. When, however, the latter is withdrawn into the orbit by the contraction of its *recti* muscles, the globe compresses the fatty cushion belonging to the cartilage; this cushion, pressing outwards, pushes the membrane before it, and the latter then entirely conceals the whole front of the globe. This movement is instantaneous but it may be momentarily checked by pressing gently on the eye, when the animal retracts it within the orbital cavity. The use of the membrana is to

maintain the healthy condition of the eye, by removing any matters that have escaped the eyelids; and what clearly demonstrates this function is the inverse relation that always exists between the development of this body, and the facility with which animals can rub their eyes with their anterior (pectoral or thoracic) limbs. So it is that with the horse and ox, the thoracic limb of which cannot be applied to this purpose, the membrana is very largely developed; in the dog, which may use its paw, to some extent, when it requires to brush its eye, it is smaller; in the cat it is still less; while in the monkey and in mankind, whose hands are perfect, it is rudimentary."

It might be stated in this connection, that, whereas, the human eye is provided with six muscles, viz.: four straight and two oblique, the horse and ox have an extra rectus, known as the *retractor oculi;* and a third or middle oblique has been mentioned by Strangeways, of Edinburgh, as sometimes, if not always, found in the former animal. This posterior rectus, or retractor bulbi, of the horse and ox, seems to be considerably concerned in the mechanism of the movements of the *membrana nictitans*, although Chauveau credits them to no special muscle, as its action, when contracting, is to draw the globe towards the back of the orbit, and in doing so assists in flattening the adipose cushion which moves the membrane.

This membrane completely envelopes the extra-cranial portion of the optic nerve, being a muscular sheath resembling in shape the fibrous lining of the orbit. Its fibers are disposed longitudinally, arise around the optic foramen, and are inserted into the posterior part of the external face of the sclerotic. It is always more or less fasciculated, and may be frequently separated into four portions—superior, inferior, external and internal.

No doubt many of you may have observed the elliptical, rather than circular, shape of the pupil in equine species. Appearing attached to the upper pupillary border of the iris in the horse can be seen several (four or five) roundish fungous-like masses. I recollect a year or two ago observing an editorial in

a Western paper devoted exclusively to these bodies, the editor evidently imagining he had made the wonderful discovery that fungous growths had been discovered in the eyes of every horse that shied, and that shying was chargeable altogether to these, presumably, malignant neoplasms. This journalist was quite correct when he said that all shying horses had these *corpora nigra*, as they are termed, but if he had extended his investigations a little further, he would have found that the non-shying ones possessed them also.

In briefly describing these pigmentary bodies, it may be said that the posterior face of the iris, in relation with the lens and ciliary processes, is covered by a very thick layer of pigment termed the *uvea*, from its resemblance to the color of a ripe grape. Portions of this pigment, supported by a small pedicle, frequently pass through the pupillary aperture and appear in the anterior chamber of the eye, as the brownish-black spongy masses referred to. Occasionally, but quite rarely, a small body may be found on the lower margin. Smith, in his Manual of Veterinary Physiology, states that when the pupil is contracted in direct sunlight, the centre of it is entirely blocked out by these pigmentary masses and divided into an inner and outer portion. It would appear as if this caused an imperfect image to be imprinted on the retina, and this view was at one time held; but on subjecting the question to actual experiment, no broken image was found to result from the use of a diaphragm, the centre of which was blocked out.

The use of these bodies is doubtless to assist in absorbing rays of light; but their position in the centre of the pupil, when that aperture is contracted, would, theoretically, not appear to be the most suitable position, and the author just quoted thinks they must have some other function.

With the exception of one area, the whole of the interior of the choroid is covered with pigment, and the same extends on to the ciliary processes and the iris. This area lies on the posterior wall of the eyeball above the optic nerve; it is of a brilliant metallic color in the horse, a mixture of green, yellow and

blue, and is known as the *tapetum lucidum*, or bright carpet. It is found in both herbivora and carnivora; in the former it is said to be due to the interference of light causing irridescence, produced by the arrangement of the connective tissue of the choroid, and not to the presence of any pigment. In carnivora it is due to minute crystals in the cells of the part, the crystals causing the interference. Chauveau states that by reflecting the rays of light a second time through the retina, it probably enables the animal to see better at night, or in a low light, the tapetum acting as a concave reflector. Of course we are all familiar with the glare in the eyes of the cat in the dark.

Leaving the region of the eye, which has, perhaps, occupied more time than was necessary, we might say a word or two with regard to the region of the shoulder. In solipeds, or whole-hoofed animals, as the horse, this region has for its base but a single bone—the scapulo. In fact there is no clavicle present in any of the domestic herbivora; but in the carnivora, the shoulder has two bones—the scapula and clavicle. In the dog, the latter is little more than a shell embedded in the muscles in front of the scapulo-humeral angle; while in the cat, it constitutes a small styloid bone which is united to the acromion process and the sternum, through the medium of two ligaments.

The humerus in man is relatively much longer than that of animals.

The radius and ulna deserve brief mention. The latter bone in the horse ends, at its inferior extremity, towards the lower fourth of the principal portion of the forearm in an acute point, and sometimes by a small knob, the *capitulum ulnae*. It is not rare, however, to see it prolonged, especially in the ass and mule, to the inferior external tuberosity of the radius.

In the ox, sheep and goat, the ulna extends the whole length of the radius, and takes part in forming the articular surface corresponding with the carpal bones. In the hog, like the ruminant, the lower end of the ulna is in contact with the upper row of bones of the carpus.

It may be stated that the development of the ulna is in direct

relation to the division of the foot. In monodactylous animals, for instance, such as the horse, ass and mule, the ulna may in fact be said to be only rudimentary. In pentadactylous animals, on the other hand, such as man, the dog and cat., etc., this is, in reality, a long bone which equals, or even exceeds, the radius in volume.

Coming now to the manus, or hand, we may say that the limits of this region extend from the lower end of the forearm to the third phalanx inclusive. If it is examined superficially, the differences it presents in the number and arrangement of the parts composing it are very striking. The digits that terminate the hand are pieces which, from the earliest times, have most occupied the attention of observers. Thus, when we do not go beyond appearances, it might be believed that, with regard to the number of digits, there were great differences in animals. From this point of view, says Chauveau, the domestic animals form a nearly decreasing series, commencing with the carnivora, and terminating with solipeds. This author further states that, although the horse appears to have only one digit, the ox two, the hog four, and the dog and cat five, yet the hand in all these creatures may be referred to the pentadactylous type. We will refer briefly to only two of these—ruminants and solipeds.

Intended as an organ of support, the hand of the ruminant offers several fusions and abortions, which increase the solidity at the expense of its suppleness and flexibility. Thus, in the first place, it appears more difficult, than in other animals, to find materially or virtually the elements of the five digits.

Only six bones are found in the carpus of the ox, sheep and goat, but the study of relations demonstrates that there are: abortion of the fifth bone of the upper row; fusion between the first and second, and between the third and fourth, and abortion of the fifth bone of the lower row. So that, in reality, there are met with in the carpus of the domestic ruminant, the elements of ten bones, with the exception of two not developed.

The metacarpus comprises a principal metacarpal—the in-

ferior articular face of which is double—and a styliform bone placed along its external and internal borders.

For a long time Geoffroy Saint-Hilaire had demonstrated that the principal metacarpal is formed by two metacarpals brought together during fœtal life, and separated by a more or less incomplete medullary septum during extra-uterine existence. Besides the isolation of the two metacarpals—temporary in the ox—is permanent in some other ruminants. With regard to the external stylet, it is an atrophied metacarpal; for, in some teratological instances, it becomes elongated, and supports a more or less perfect digit. It is the same with the internal stylet, which is usually smaller, and embedded in a fibrous cord running along the large metacarpal; it may, like the external stylet, be converted into a perfect metacarpal.

Normally, no traces of a fifth metacarpal are found in the domestic ruminants, although it appears in some anomalies.

I understand that the museum of the Toulouse Veterinary School possesses the hand of a lamb in which the 5th can be seen inside the internal stylet, which has been transformed into a long metacarpal, which is evidently the metacarpus of the thumb, and bringing the metacarpus up to the pentadactylous type.

The digital region of ruminants presents two perfect digits (the 2d and 3d), and two rudimentary ones reduced to one or two small phalanges covered by a horny plate situated behind the metacarpo-phalangeal articulation. The two rudimentary digits may, in certain cases, be reproduced—to the right and left of the normal ones—complete, and suspended from real metacarpals. The presence of the 5th digit is normally indicated, according to Joly and Lavocat, by a tuft or spike of hair inside the carpus, rather above than below it. It may be mentioned that Geoffroy Saint-Hilaire studied a new-born lamb which had five digits in the anterior limb.

In solipeds, there is apparently only one digit enclosed in one hoof. Nevertheless, by the aid of analogous facts to those which have assisted in proving pentadactylism in ruminants, it

is possible to demonstrate that the hand of the horse, ass, etc., is no exception to the general law.

Many anatomists describe only seven bones in the carpus of the horse—4 in the upper, and 3 in the lower row. But it is not rare to find a pisiform bone on the inner side of the trapezoid, which raises the number of carpal bones to eight. And Bourgelat, Girard, Rigot, and Goubaux, have observed in the carpus of the horse, in addition to the bones mentioned, a similar piece alongside the external bone of the second row. Lavocat considered this second piece as the first of the inferior carpal bones, the base of the external digit, and that the bone found beside the trapezoid was the base of the fourth finger.

The carpus of solipeds, then, does not differ very materially from the archetype.

The metacarpus of solipeds comprises a large bone articulating with the digital section, and two rudimentary pieces, one on each side of it, which are, in reality, atrophied metacarpals; for in some teratological specimens they are as long as the principal bone, and terminate in a diarthrodial surface which articulates with a perfect digit. It is considered that the principal metacarpal of solipeds is the homologue of the metacarpus of the medius of pentadactylous mammals.

The horse, then has always three metacarpals—one for the medius, the index, and the annularis. Usually the metacarpal of the thumb is completely aborted; but yet, the existence of these bones is indicated by the frequent presence of the pisiform at the inner side of the carpus. Also, as a continuation from the pisiform, there may be found a conical prolongation parallel with the metacarpal bone of the index—a prolongation which, because of its connections, should be regarded as the metacarpal of the thumb.

Although no teratological example is known, with respect to the metacarpal of the annularis (little digit), its existence is virtually indicated by the presence of this small external carpal bone sometimes observed, and which was noted by Bourgelat, Rigot and Goubaux.

The phalangeal section only possesses the elements of a single digit. But besides the hoof, soliped animals have a horny plate divided by a sligh median groove, and resting on an elastic cushion behind the metacarpo-phalangeal articulation. This plate has vessels and nerves from the same source as those of the principal digit; and Joly and Lavocat regard it as the representative of the phalanges which should be continued with the rudimentary metacarpals. In fact, when one of these metacarpals is developed into a perfect digit, the horny plate diminishes in volume, because a portion of its substance is carried to the extremity of the supplementary digit. The 5th digit is not absolutely represented, except by its carpal base, which is often absent; yet its presence in a certain number of instances, permits the affirmation that solipeds, materially and virtually, belong to the pentadactylous type; which conclusion, according to Chauveau, applies to all the domestic animals.

I trust you will excuse me taking up so much time with this particular region; but as it is one which, without some familiarity with it, its homologous relations to the human hand are so easy of misapprehension. But before passing on, I would like to say a few words with reference to the homology existing between the human nail, the dog's claw, and the horse's hoof.

As you are all aware, cornification of the epidermis results in the formation of horn, such as that, in this instance, found in the structures just mentioned. Some of the relations between the epidermis of the appendages and the claws, are interesting. In the human finger there exists beneath the nail a peculiarly modified epidermis—the *sub-ungual* portion, while the usual epidermis covers the ball of the finger. In the *unguiculates* (animals with claws), according to Kingsley, the sub-ungual portion is more developed and forms the lower surface of the claw. In the *ungulates* (hoofed animals) the unguis becomes much wider, and is rolled into a hoof, on the lower surface of which is still to be recognized the sub-ungual epidermis, forming, for instance, in the case of the horse, the sole, into which

there projects behind, the frog of the foot, which, in reality, corresponds to the ball of the finger in man.

To bring the region of the hand within easier reach of the comprehension of the casual observer, it may be stated that, in the horse, for example, the homologue of the human hand is that part of the pectoral, or fore, limb beginning at the distal end of the radius, just above the equine knee so-called. We have here the radio-carpal joint formed by the lower end of the radius and the upper row of carpal bones, viz. : the trapezium, cuneiform, lunar and scaphoid. Next we have the carpo-carpal, or inter-carpal, articulation between the upper row, just mentioned, and the bones of the lower—the unciform, magnum and trapezoid (the pisiform not always being present), and the carpo-metacarpal joint between the lower row and the three metacarpal bones. The metacarpal region of the horse extends from the carpus, or knee, to the fetlock, or metacarpo-phalangeal joint, after which we have the 1st, 2d and 3d phalanges, which latter, in veterinary anatomy, are sometimes designated *os suffraginis*, *os coronæ* and *os pedis*. The pastern joint, so-called, is the first inter-phalangeal, the second being popularly known as the navicular, or coffin-joint, which is within the hoof.

The hind or pelvic limb of the quadruped might be referred to along the same general lines as we have viewed the pectoral member, but which seems unnecessary at this time. Suffice it to say that the homologue of the human foot begins at that region in the horse known popularly as the hock. This is, in reality, the *tarsus*—the point of the hock, as it is termed, being the *calcaneum* or *os calcis*, representing the human heel, and to which is attached the tendon-Achilles, or tendons of the gastrocnemii muscles. If you could, therefore, imagine a horse standing in an erect position, with the lower part of the limb, from the hock to the foot, upon the ground, you could perhaps more clearly see the homology, letting the relatively long metatarsus, with its digits, represent the second or third toe of the human foot.

The homology between the knee of man and the stifle, or femoro-tibial articulation, of the horse is, likewise, not always

clear to those not familiar with comparative anatomy. The horizontal position in the quadruped, and probably on account of the femur being shorter and deeply embedded in muscular tissue, rather obscures the relations. But, if we again imagine our animal standing erect on his hind legs, we can more easily see the similarity. Unlike man, however, the horse has three patellar ligaments (external, middle, and internal straight ligaments of the patella) instead of one, although several of the lower species have a single *ligamentum patellæ*.

The domestic animals, other than solipeds, are distinguished by the complete absence of a pubio-femoral ligament; so that in them the movements of abduction, which are limited in solipeds by the tension of this ligament, are much more extensive; and it is the absence of this structure which seems to explain the facility with which the larger ruminants are enabled to strike sideways, a movement known popularly as a "cowkick."

In alluding briefly to the digestive system, it may be said that the greatest difference is to be seen between the simple, single stomach of man, and the majority of the lower species, and the large complex stomach of the ruminant with its numerous compartments. For example, according to Colin, while the average capacity of the horse's stomach is only some 17 quarts, the stomach of the ox will accommodate some 300 quarts. The first three compartments are more in the nature of preparatory receptacles, the fourth being the true digestive cavity, into which the food passes, after regurgitation from the primary compartments, and final mastication, or, popularly speaking, "chewing the cud."

To compensate for the relatively small stomach, the horse's intestines are more capacious than those of the ox, which is shown by the fact, that the capacity of the large intestine (the colon) of the former animal is about 137 quarts; that of the ox, only about 40 quarts; the small intestine of the horse holding about 67.4 qts., and that of the ox only 69.7 or but 2.3 qts. more.

The horse, ass and mule have no gall-bladder, the *ductus choledochus* joining the *duct of Wirsung* and entering the small

intestine as the *ductus communis choledochus et pancreaticus*. Bile is secreted continuously, but instead of passing into a receptacle, before entering the intestine, as in other animals, in the horse a greater quantity passes into the duodenum during digestion.

A most interesting collection of blood vessels is to be found at the base of the brain of ruminating animals, which seems to be the analogue of the *circle of Willis* in man, solipeds, etc. In the sheep it may be described as follows: The originating arteries, usually consisting of two principal vessels, arising with the ophthalmic and passing backward through the supra-sphenoidal canal, and ramifying in a special manner to form a mass of reticular twigs, designated, the *rete mirabile* (wonderful network) of Galen. It is a small ovoid mass, elongated from before to behind, placed beneath the dura mater, on the side of the sella Turcica, within the superior maxillary nerve, and composed of a multitude of fine arterial divisions which anastomose with each other in an extremely complicated manner. To give a summary idea of this beautiful network, it might be compared to a lymph gland, the afferent vessels of which would be represented by the originating arteries with the spheno-spinous, and the efferents by the originating trunk of the encephalic arteries.

In the ox the shape of this arterial entanglement offers but slight differences to that just described.

Fleming states that this *rete mirabile* would appear to be formed on the carotid and vertebral arteries of animals which in a state of nature, feed from the ground, the object being to furnish an equable and prolonged supply of blood without the risk of check or hindrance, and thus to obviate the tendency to congestion of the brain during the dependent position of the head.

This minute subdivision and subsequent reconstitution of an artery, with a like intention, is also observed in other creatures besides grazing animals. The vessels in the arm of the sloth are so disposed that the animal can remain suspended for long periods, and a similar arrangement is noted in the legs of birds, such as the swan, goose, etc., which can stand for a long time.

Around the foot of the horse the arteries break up into numerous divisions, and it is known that this animal can remain in a standing posture for months. The same object is sometimes attained by great tortuosity, the most remarkable case of which is observed in the carotid artery of the seal, which is nearly forty times longer than the space it has to traverse.

In the lower mammals we of course find differences in the general make-up of the teeth and of the tempora-maxillary articulation, dependent upon the nature of the food on which they subsist. In the purely herbivorous class, the molars are somewhat smooth on their tables, and more or less beveled, especially in the horse, with the upper jaw wider than the lower, and the temporo-maxillary joint looser, so to speak, to permit of considerable lateral movement in the operation of grinding the food.

Touching very briefly the genito-urinary system, it may be said that the carnivora have no *vesiculæ seminales*—the spermatic fluid passing directly from the testicle through the vas deferens to the female organs. In the dog there is a penial bone, which almost entirely constitutes the base of all that portion of the penis included within the sheath or prepuce. This os penis is intended to favor the introduction of the organ, but it may, at the same time, have something to do with the prolonged coital act in this animal, thereby allowing time for the secretion and ejaculation of the seminal fluid.

Cowper's glands are absent in the ox and dog, although present in the horse, and are small in the ram and cat. The prostate is found in the various lower species.

This, gentlemen, is only a mere tithe of what could be said upon the subject, and I must apologize for the apparent lack of system in the get-up of this hurriedly prepared paper. I have simply touched a few of the "high places" in the broad field of comparative anatomy, as the various points hastily cropped up in my mind; but if what I have said should have afforded you any information or enlightenment regarding a branch of study so closely allied to your own, I shall feel satisfied.

CONTAGIOUS ABORTION IN COWS.

By A. E. Moore, D. V. S., Inspector, Health of Animals Service, Dominion of Canada.

Read at the Second Annual Meeting of the Central Canada Veterinary Association, Jan. 27th and 28th, 1904, St. Andrew's Hall, Ottawa, Canada.

This is one of the most troublesome, discouraging, and expensive maladies that cattle are subject to. It is insidious in its character, causes great losses, especially to breeders of pure-bred stock where the young are valuable, and also materially lessens the dairyman's milk supply. The disease often comes on without the owner's knowledge, and several cows may have aborted before anything is noticed, especially when they are at pasture. Owing to this fact the disease may gain considerable headway, and a large percentage of the cows in the herd may become infected before the owner can use precautionary means.

Definition.—Contagious abortion is a catarrh of the genital organs of the female, due to a specific virus, which causes the premature expulsion of a non-viable fœtus.

It is known by the names of "infectious abortion," "enzoötic abortion" or "epizoötic abortion." It is most common in cows, but is also seen in ewes, goats, sows and mares.

Sporadic or non-contagious abortion is due to many accessory causes, such as nervous excitement from the smell of decomposing animal matter or the carcass and blood of an animal newly slaughtered, constitutional diseases as the infectious fevers, or advanced cases of tuberculosis. The drinking of large quantities of ice water, eating frozen roots or foods that have fermented, especially those of the albuminous plants, as clover, alfalfa, etc., causing tympanitis and mechanically crowding the genital organs. As these plants are often loaded with bacteria, it is possible that sporadic abortion may in some cases be due to an ecbolic physiological action of these bacteria. Ergoted grasses and grains, stagnant or contaminated drinking water, various mechanical injuries, may produce sporadic abortion. Any of these causes which produce sporadic or accidental

abortion may coöperate with the infectious form, thus making it still more troublesome and difficult to manage.

It is of the utmost importance, therefore, that contagious abortion should be recognized as such as early as possible. It has always been my practice to treat all cases as if I were dealing with the contagious form.

A history of the outbreak should be carefully inquired into. For example, if a cow that has been brought from a herd where abortion is prevalent, and shortly after her arrival one after the other of the original herd abort without any apparent cause, the evidence is conclusive that we are dealing with contagious abortion.

I have known a bull to be the means of spreading the disease in a community. A client of mine owned a valuable Jersey bull, he was at the head of a large herd of cows where contagious abortion was prevalent; several neighbors brought their cows to this bull for service and in nearly every instance the disease appeared in their herds, their cows aborting usually between the fifth and seventh months of gestation. These newly infected herds each being new centres of infection, were the means of starting a most extensive and disastrous outbreak of this disease.

Experimental Infection.—The introduction of the vaginal mucus or the placenta of an aborting cow into the vagina of a healthy pregnant cow has resulted in abortion at varying periods, usually from nine days to a month. This demonstrates that the infecting agent is present in the uterine liquids and fœtal membranes.

Pathology.—The Scottish Abortion Committee isolated five different bacteria from the vaginal mucus and placental membranes, but no one of these by itself was capable of producing the disease.

Nocard found a micrococcus and a bacillus which he thought was the specific cause of abortion.

Law, Veranus A. Moore and Chester found a bacillus which closely resembled bacillus communis, but failed to produce abor-

tions by inoculation, although catarrh of the vagina was produced.

About ten years ago, Bang found in the straw-colored exudate, between the fœtal membranes in the uterus of an aborting cow, a very minute non-motile bacillus which produced abortion in cows, ewes, goats, rabbits, and guinea-pigs, after injection into the vagina. In some cases where the bacilli were injected subcutaneously they caused a rise in temperature, and were found later in the womb, fœtal membranes and the body of the fœtus. Thus this microbe is capable of living in the blood and may therefore affect the womb by whatever channel it may enter the system.

The bacillus that the American pathologists have found appears to produce only a local affection, living in the genital mucosa, while Bang's bacillus lives in the blood, and is capable of producing a general infection, and is therefore undoubtedly the cause of contagious abortion.

Immunity.—As a general rule, a cow that aborts is likely to do so again at the next pregnancy, but each year she may carry her fœtus for a longer period, when perhaps at the third or fourth year she will go her full time. The bacilli are retained in the mucous membranes of the uterus and vagina from one year to another; this may also happen in the case of cows that have become immune, when the bacilli no longer affect the immunized animal, but are still present and virulent, rendering an immune animal a source of danger to others. Thus, newly purchased cows, introduced into a herd where contagious abortion has prevailed, are very likely to become infected.

Modes of Infection.—When infection takes place into the vagina while an animal is pregnant it probably reaches the uterus by means of the circulation.

Bulls become the means of infection by serving aborting and immune cows; the bacilli are introduced into the vagina of healthy cows during sexual intercourse.

It is generally thought that the bacilli most commonly gain entrance to the animal by means of the *vagina;* from infected litter, floors, stalls, tails of infected cows in the next stall or in

fact anything with which an infected animal has come in contact.

I have known the disease to be introduced into a healthy herd by means of an injection pump which was used by a quack to wash out the uterus of an aborting cow shortly after he proceeded to give a cow in a healthy herd an enema with this same pump which had not been disinfected. In due time this cow aborted and was followed by several others in the herd.

Pathology.—The lesions found in contagious abortion are confined to the generative organs, and especially to the mucosa of the uterus. Bang found a straw-colored, odorless, flocculent, slimy mucous exudate between the uterine mucous membrane and the chorion, involving the connective tissue between the chorion and arachnoid, rendering it thick and friable.

The umbilical cord is œdematous, there may be ascites and more or less intestinal irritation of the fœtus.

Symptoms.—In many cases there are no premonitory symptoms; the first evidence being that the cow has already aborted. If clinical symptoms are seen there may be a slight enlargement and heat of the udder with perhaps a small quantity of milk, the amount of milk varying according to the period of gestation. I have seen a few cases where there was slight elevation in temperature, 103°-103½° F. There is usually a mucopurulent discharge from the vagina, uneasiness, tumefaction of the vagina, and other symptoms resembling normal parturition may be seen.

Treatment.—Carbolic acid and creolin have been administered in from 1 to 4 drachm doses every other day, to cows showing symptoms of abortion. This treatment has met with quite a degree of success.

Carbolic acid given hypodermically or injected into the muscles has as far as I am aware not given any marked results.

Precautions.—The cow that shows symptoms of abortion or that has already aborted, should be at once removed to a separate stable away from all other animals. The stall, floors and gutter where a cow has aborted should be thoroughly scrubbed with a solution of crude carbolic acid, four or five ounces to the

bucket of hot water; this should be followed by an application of whitewash, one pound of crude carbolic acid to be added to every four gallons of the whitewash. The fœtus and membranes should be carefully removed from the stable and burned. The manure in the gutter behind or near the aborting cow should be removed where no animal can have access to it and sprinkled with a solution of crude carbolic acid, one pound to four gallons of water, then placed under as soon as possible.

All the pregnant cows in the herd should have the external generative organs, the hips, thighs, and tail, washed once a day with an antiseptic solution, such as 1 part creolin to 30 parts H_2O.

If the afterbirth of an aborting cow has not come away it should be carefully removed. The uterus in all cases should be washed out, using one part creolin and 50 parts water. This can be done by using a rubber tube with a funnel attached to one end, allowing the liquid to be forced in by gravitation.

The stable should be well ventilated, lighted and drained.

As the disease is so frequently transmitted to healthy cows by means of a bull which has lately served an aborting cow, it it is advisable to inject a solution of creolin, 1 to 40 or 50 parts warm water, into the sheath of the bull, holding the external opening, and the solution pressed into all parts (a fountain syringe is useful for this operation); finally the skin and hair around the sheath and belly should be well washed with the above solution. This operation should be practiced after each service.

An aborting cow should not be bred until all the discharges have stopped.

To protect a sound herd from contagious abortion in a locality where the disease exists is extremely difficult, as an infected animal usually presents the appearance of perfect health. In buying a cow from such districts the owner should be satisfied that the disease has not existed for several years in the herd where he intends making his purchases. If the newly acquired female is pregnant, keep her by herself until after she calves; if she is to be bred to a bull in the sound herd, his sheath should be disinfected after the service.

RESECTION OF FLEXOR PEDIS TENDON FOR PURULENT INFECTION OF THE NAVICULAR BURSA.

By W. L. Williams, Professor of Surgery, New York State Veterinary College, Ithaca, N. Y.

Presented to the Fourteenth Annual Meeting of the New York State Veterinary Medical Society, at Brooklyn, Sept. 13-15, 1904.

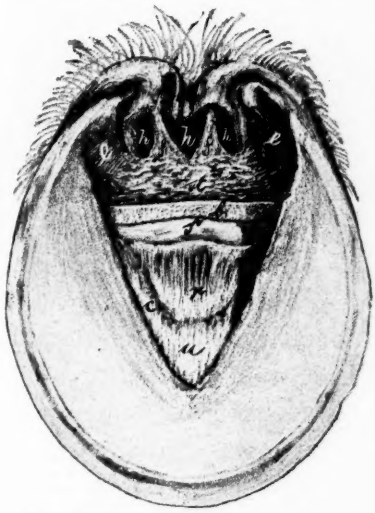
Resection of the flexor pedis tendon for the relief of purulent inflammation of the navicular bursa is a comparatively old operation which has been largely neglected or overlooked by many veterinary practitioners.

The earliest mention of the operation we have found is a reference to an article by Nocard in 1879, since which time it has been described by Cadiot, Hoffman, Möller, Pfeiffer, Liautard and others. The indications for the operation are an infected navicular bursa, commonly the result of a penetrant nail-wound. The operation we have practiced and incorporated in our surgical and obstetrical operations is copied without material alteration from Pfeiffer's "Operations-Cursus," and is briefly as follows:

Instruments required.—Elastic ligature, drawing knife, double-edged sage-knife, scissors, tenaculum forceps, curette, tenaculæ, bandage and dressing material.

Technic.—Before operating, if conditions will warrant, thin the sole, frog and bars until yielding soft horn is reached, and apply an antiseptic pack to the hoof for twenty-four hours. Secure the horse on the operating table. While it is possible to operate without a table, it is best not to do so if avoidable. Anæsthetize. Anæsthesia is essential to a proper operation, and is demanded by considerations of humanity. Thoroughly disinfect the entire foot and apply the elastic bandage or tourniquet in the metacarpal or metatarsal region.

Make a transverse incision through the base of the frog two or three centimetres anterior to the bulb, through the horny (*h*)



RESECTION OF THE FLEXOR PEDIS TENDON.

Solar surface of the foot: *c*, semi-lunar crest of os pedis; *u*, os pedis; *r*, navicular-pedal ligament; *s*, navicular bone; *b*, flexor pedis tendon; *e*, sensitive laminæ of the bars; *st*, fatty frog; *f*, sensitive frog; *h*, horny frog.

and sensitive (*f*) frog and the fatty cushion (*st*) down to the flexor pedis tendon (*b*). From either end of this incision make an oblique and somewhat curved cut forward, the lines converging to meet at the apex of the frog against the semi-lunar crest of the pedal bone (*c*). These incisions may either follow the line between the bars and the frog or may be within the bars .5 cm. from the border. The isolated triangle is now grasped with tenaculum forceps and its excision completed. The remnants of the fatty cushion should be removed, fully exposing the tendon, through which the outline of the navicular bone can be easily felt with the finger tips. The tendon is then divided transversely over the middle of the navicular bone (*s*). Remove all necrotic tendon, bone or other tissues. Curette away the articular cartilage from the navicular bone. Disinfect the operation wound, pack the wound cavity with iodoform, pack entire foot in antiseptics, and over all apply tar bandages. If the animal is free from fever, the foot does not swell, and the pain is unimportant, leave the bandage in position for eight to twelve days.

The operation is essentially an attempt to disinfect the part, and succeeds or fails almost entirely upon the accomplishment, or not, of this object.

Möller favors operating by simply making the two convergent incisions in the frog, omitting the transverse one, and turning the apex upward and backward, under the belief that it will leave less scar or deformity. It has the objection of complicating the technic and rendering disinfection less complete.

Liautard advises a partial operation, but in such a way that he is difficult to follow, and apparently expects a suppurating operative wound.

The prognosis of the operation is favorable. Without the operation we cannot disinfect the bursa; nearly fifty per cent. of cases die, and the remainder are so lame as to prohibit work as a rule for from four to twelve months. In addition it is one of the most painful injuries with which we meet and the acute suffering continues week after week. After operating successfully, the intense suffering ceases at once, and under favorable conditions the horse is ready for slow work in less than six weeks. He may be lame at a trot for some months. The operation is consequently more valuable in horses for slow work. Under favorable conditions healing is aseptic. Cicatricial tissue occupies the wound cavity and adheres to the denuded navicular bone. The contraction of the cicatrix draws the bars toward the median line until they come in close apposition. The external evidence of this contraction upon the hoof walls is not very pronounced.

The work required in operating is less than that demanded by expectant treatment with daily attention. When the operation is once completed it requires almost no care except to watch the temperature and other evidences of a suppurating wound. From a humane standpoint no operation on animals can well afford more gratifying results. The immediate relief from the excruciating pain could not be more marked in any surgical operation. We feel confident that a more general resort to the operation would prove of financial benefit to owners, greatly reduce suffering to the animals and decrease the total work necessary in handling these cases.

The operation is not difficult when the veterinarian is properly equipped, has a knowledge of anatomy, and will carry out carefully the rules of disinfection.

FRANK B. FORD, D. V. S., of New Orleans, La., visited New York and Brooklyn last month, calling upon his many professional and social friends.

VETERINARY EDUCATION.

ITS BENEFITS TO THE WORLD—WHAT IT HAS DONE FOR COMPARATIVE MEDICAL SCIENCE, FOR MANKIND, AND FOR THE WEALTH OF NATIONS—ITS POSSIBILITIES FOR THE FUTURE.

AN ADDRESS TO THE VETERINARY STUDENTS AT THE OPENING OF THE VETERINARY DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA, SEPT. 20, BY THE DEAN, DR. LEONARD PEARSON.

"*Gentlemen.*—In three days it will be two decades since the first introductory address was delivered at the Veterinary Department of the University of Pennsylvania. In another year this department will be 'of age.'

"It seems to be appropriate at this time to review, concisely the influences that led to the beginning of veterinary education and the functions and possibilities of our school.

"The systematic teaching of the veterinary sciences began in France in 1762 with the founding of the Veterinary School of Lyons. The advantages of this action were at once so evident that within a few years almost every nation of Europe was provided with a government veterinary school. This development seems to be most natural when we recall the extent to which animal plagues prevailed. During three years in the early part of the Eighteenth Century a single disease (rinderpest) killed 1,500,000 cattle. From four widespread outbreaks of the same disease, before the establishment of veterinary schools, it is estimated that Europe lost 200,000,000 cattle worth approximately $4,000,000,000.

"So rich a country as Holland was once devastated and sorely distressed by a disease of cattle that impoverished the farmers, diminished the food supply of the towns and made it almost impossible, through the inability of land owners to pay their taxes, for the government to meet its obligations and perform its functions. As insurance against such devastation, splendidly equipped veterinary schools are now munificently

supported by all of the progressive countries of Continental Europe.

"In Great Britain alone veterinary education is allowed to shift for itself. No doubt this has some relation to the fact that during the thirty years ending in 1872 Great Britain lost, from the prevalence of various plagues of cattle, $450,000,000 (Fleming).

"The veterinary schools of Continental Europe are sustained from public funds on a scale unapproached and unthought of in this country. This is because they have by their work shown themselves to be worthy of generous support and encouragement. It is there recognized that it is much easier, pleasanter and cheaper to provide for the highest grade of veterinary research and education than to endure and meet the losses that are prevented by this science. Veterinary schools a hundred years old are constantly being added to, strengthened and re-equipped so that they may be better prepared to investigate and solve new and more intricate problems.

"It is through investigations and experiments in relation to disease of animals that modern medicine has achieved some of its greatest triumphs. For illustrations we may refer to the discovery of the bacillus of anthrax in the blood of cattle, by Pollender, and the further studies of anthrax by Devaine, Cohn and Koch, which led to the establishment of the so-called 'germ theory' of disease. The greatest developments in preventive medicine have followed the demonstrations of the soundness of the views of these early investigators who worked upon this disease of animals.

"It was through observing the effects of the inoculations of dairymen and milk maids with cow pox that Jenner discovered an effective method of preventing smallpox. The prevention of disease by vaccinating with the virus of the disease after it had been attenuated by laboratory methods was worked out by Pasteur upon diseases of animals and in relation to fowl cholera, anthrax and rabies. A similar method for the prevention of tuberculosis is now being developed by work done on cattle.

"The discovery in 1889 that Texas fever of cattle is caused by a protozoan that inhabits the red blood corpuscles and that this parasite is conveyed by the cattle tick is the foundation upon which is built our modern knowledge of the carriage of malaria and some other diseases by insects.

"Aside from the importance of the study of the diseases of animals to science and to general medicine, the economic aspects of the subject are worthy of earnest attention.

"It is sometimes forgotten in cities, but the great fact remains, that this is still an agricultural country. Wall street looks with eager eyes toward the wheat and corn fields and awaits anxiously the crop reports, so that estimates may be made as to the probable future volume of railroad business, the activity of trade and the prosperity of the country. The most important farm products of the United States are animals and their derivatives.

"The domestic animals of this country are worth about three and a half billion dollars. Their products reach a value of nearly two billion dollars each year. This is composed of many important elements. For example, even the poultry yards of Pennsylvania yield each year products of greater monetary value than those yielded by the shipyards. The poultry yards of the United States produce more than all of the gold and silver mines of this country, including Alaska.

"The efficiency of the American farmer depends largely on the great amount of power that he employs other than manual labor. There are in this country more than nineteen million horses and mules. The significance of their labor is apparent when it is recalled that all of the power furnished by steam and gas engines, water wheels and electric motors in all of the manufacturing establishments in the United States aggregate but eleven and a quarter million horse power.

"In Pennsylvania, the live-stock industry produces $100,000,000 a year. This earning does not depend upon the exhaustion of the natural resources of the State, as does mining, oil and natural gas production and lumbering as it is here prac-

ticed. On the contrary, animals assist in maintaining the spring of their origin by contributing to the fertility of the soil. All rational and enduring systems of agriculture are based upon a sound animal husbandry.

"Now these important animals of ours are, in the whole United States, destroyed and damaged to the extent of $200,000,000 a year by diseases that should be prevented. This is a terrific leak in our national resources. None but a big, young and rich country could stand it, or would stand it.

"It is the function of the veterinary school to develop methods and to train men to combat these diseases, and to assist in developing and perfecting the units that compose this vast animal industry. Each kind of animal may be improved and made more efficient as a machine. The veterinary sciences consist, then, in a union of comparative medicine and animal engineering.

"This School has for years striven to fulfil its important duties. It has consistently furnished instruction of the highest grade. It has had the loyal and unremitting support of a few staunch friends. Its faculty has been sustained by the knowledge of its members of the importance of their work, by the appreciation of their students and by the hope that the foundation and equipment of the School would, in time, be adequately provided for. This great event in the history of the School now seems to be assured. In the superb new medical laboratories unequaled facilities are now offered for the instruction of veterinary students in three of the most important subjects in the curriculum. Through the splendid endowment that has been announced by the Provost, a foundation has been laid for a school, that, let us hope, will become to the veterinary sciences what our sister schools of medicine and dentistry have become in their respective fields."

THE MINNESOTA STATE LIVE STOCK SANITARY BOARD has established a bacteriological department, with Dr. W. L. Beebe, N. Y. S. V. C., 1904, in charge. Minnesota keeps up her reputation for progress in veterinary sanitary work.

FRESH STEER'S BLOOD WHEN PROPERLY PREPARED CONTAINS THE BEST OF FOOD FOR MAN AND BEAST.

The Blomo Manufacturing Company, which manufactures the (Blomo) Blood-Molasses Feed, have received a great many inquiries from readers of the REVIEW requesting a detailed explanation as to why blood was good for herbivorous animals, particularly horses; consequently their Mr. Andrew Cullen, furnishes the following facts:

The most important, necessary and essential substance in food is the *soluble proteid.* Proteids are absolutely essential to life, whether animal or vegetable, but are exclusively of *vegetable* origin; that is, although they may be assimilated and modified by the vital processes occurring in animal cells, they must first have been performed by the chemical processes occurring in vegetable cells. When found as constituents of the tissue of carnivorous animals they have been derived *directly*, with but slight modification, from the herbivoro which have served for their food, while the herbivorous animals find them invariably ready formed in the *tissues* of *vegetables* which require but slight modification to be converted into the constituents of the animal tissues. Animals, therefore, do not have the *power* of manufacturing *albuminoids*, although they may transfer albuminous bodies of one kind into those of another. Thus casein may be transformed into the albuminous constituents of muscle-tissue; it may be combined with other substances so as to form, for example, the hæmoglobin of the blood corpuscles, or may become so modified as to form what are termed albuminoids of the different tissues. After serving the purpose of the organism such bodies are excreted, not as proteids, but as products resulting from their retrograde metamorphosis.

The proteid compounds of plant and animal bodies serve three (3) purposes as nutrients:

No. 1. To produce new muscular tissue and vital fluids in the body, and supply material for repairing broken down tissue.

No. 2. To produce heat and energy.

No. 3. To assist in the production of fat.

Proteids are complex nitrogenous compounds that contain about 16 per cent. of nitrogen and less than 2 per cent. of sulphur. The average analysis of the various elements in protein compounds is as follows:

Animal Albuminoids. (Armsby.)	Per cent.		Vegetable Albuminoids. (Armsby.)	Per cent.	
Carbon	53.5	Carbon	54.7 51.2	Carbon	52.3 54.3
Hydrogen	7.0	Hydrogen	7.6 6.7	Hydrogen	7.1 7.7
Nitrogen	15.5	Nitrogen	18.0 15.2	Nitrogen	15.5 17.6
Oxygen	22.4	Oxygen	23.5 20.2	Oxygen	20.6 23.0
Sulphur	1.6	Sulphur	2.0 0.3	Sulphur	0.8 1.6

Proteids are found in the seeds of plants, in the active living cells of both plants and animals. The proteids take an important part in life process, protoplasm being largely of a proteid nature. In the growing plant the proteids are found most abundantly in the leaves; at maturity, they are stored up in the seed for the future use of the embryo. The proteids from animal and plant sources are closely related, with the exception that in the case of the cereals or plants, the proteid cells are incased in cellulose shells, while the walls of the blood cells have no shells, but are composed of skin or membrane. The cells of plants are indistinguishable by the naked eye, and each of them, at least for a time, is a whole, complete in itself, being composed of solid, soft and fluid layers, different in their chemical nature and disposed concentrically from without inwards. For the most part a group of them is in close contact and firmly united; they then form cell tissue. Each cell fulfils its own definite part in the economy of the plant, and shows a variety in form corresponding to the different functions. By far the largest proportion of cells in the living succulent parts of plants are seen to be made up of three (3) concentrically-disposed layers: first an outer skin, firm and elastic, called the cell-wall or cell-membrane, consisting of a cellulose (woody fibre). The second layer is soft and elastic, and always contains albuminous matter,

and, thirdly, the cavity enclosed by the protoplasm sac is filled with a watery fluid called cell-sap.

The blood cell is a closed sac, the environing membrane consisting of nitrogenous compound; the sac containing a semi-fluid protoplasm. Protoplasm is a nitrogenous matter from which all kind of living beings are formed and developed, and to the properties of which all their functions are ultimately referred. It is the slimy, granular, semi-fluid contents of the vegetable and animal cell, the *identity* of which was established by Schultz, whose conclusions were aided by the researches of DeBary and Koelliker, under high microscopic power, in many instances shows more or less definite structure composed of fibrils more or less regular, and in some instances grouped into a honeycombed or fibrillous reticular, in the meshes of which is a homogenous interstitial substance. The closer the meshes of the reticulum, the less there is of this interstitial substance, and the more regularly granular does it appear. Water, dilute acids, and alkalies, cause protoplasm to swell up, and ultimately become disintegrated, and is coagulated by those substances that coagulate proteids.

The term crude protein is applied to the nitrogenous compounds of foods, taken collectively as a group. The word *crude* is used to distinguish this group because it contains various nitrogenous bodies not proteids.

Pure protein is a simple chemical compound, while *crude protein* consists of a group of compounds of which *pure protein* is one. The *albumen* of eggs, the *blood and milk* of animals and the *gluten* of grains are types of *pure proteids.* In the analysis of both *plant* and *animal substances* the chemist first determines the per cent. of total organic nitrogen and then multiplies this by 6.25 to obtain the equivalent amount of *crude protein.* This is because the proteids contain on the average about 16 per cent. nitrogen, or there is about one part of nitrogen to every 6.25 of protein. The nitrogen determination is one of the most accurate in chemistry. The method consists in first digesting the material in a flask with sulphuric acid to

oxidize the organic matter and convert the nitrogen into ammonia sulphate. The nitrogen in the form of ammonia sulphate is then liberated as free ammonia, distilled, and its amount determined. Nitrogen in combination with carbon, hydrogen and other elements, form the nitrogenous compounds present in plant and animal bodies. These compounds are called the organic nitrogenous compounds. In the chemistry of foods, soils, and fertilizer, the element nitrogen is very prominent, and is one of the most expensive elements in commercial fertilizers, and foods which contain the nitrogenous compounds are the most expensive. It is one of the most important elements to the agriculturalist, because of the rôle which it plays in plant and animal economy.

For a description of nitrogen, I know of no more reliable source of information than the celebrated chemist, Prof. D. Mendeleeff, whose works have been translated into all languages. His exposition *verbatim* is as follows:

"Gaseous nitrogen forms about four-fifths (by volume) of the atmosphere; consequently the air contains an exceedingly large mass of it. While entering in so considerable a quantity into the composition of air, nitrogen does not seem to play any active part in the atmosphere, the chemical action of which, is mainly dependent on the oxygen it contains. But this is not an entirely correct idea, because animal life cannot exist in pure oxygen, in which animals pass into an abnormal state and die; and the nitrogen of the air, although slowly, forms diverse compounds, many of which play a most important part in nature, especially in the life of organisms. However, neither plants nor animals directly absorb the nitrogen of the air, but take it up from already prepared nitrogenous compounds; further, plants are nourished by the nitrogenous substances contained in the soil and water, and animals by the nitrogenous substances contained in plants and in other animals. Atmospheric electricity is capable of aiding the passage of gaseous nitrogen into nitrogenous compounds, as we shall afterwards see, and the resultant substances are carried to the soil by rain, where they serve for the nourishment of plants. Plentiful harvests, fine crops of hay, vigorous growth of trees (other conditions being equal) are only obtained when the soil contains *ready prepared nitrogenous*

compounds, consisting either of those which occur in air or water, or of the residues of the decomposition of other plants or animals (as in manure). The nitrogenous substances contained in animals have their origin in those substances which are formed in plants. Thus the *nitrogen* of the atmosphere is the origin of all the nitrogenous substances occurring in *animals and plants*, although not directly so, but after first combining with the other elements of the air.

"The nitrogenous compounds which enter into the composition of plants and animals are of primary importance; no vegetable or animal cell, that is, the elementary form of organism, exists without containing nitrogenous substance, and moreover organic life manifests itself primarily in those nitrogenous substances. The germs, seeds, and those parts by which cells multiply themselves, abound in nitrogenous substances; the sum total of the phenomena which are proper to organisms depend primarily on the chemical properties of the nitrogenous substances which enter into their composition. It will be sufficient, for instance, to point out the fact, that vegetable and animal organisms, clearly distinguishable as such, are characterized by a different degree of energy in their nature, and at the same time by a difference in the amount of nitrogenous substances they contain. In plants which compared with animals possess but little activity, being incapable of independent movement, etc., the amount of nitrogen is very much less than in animals, whose tissue are almost exclusively formed of nitrogenous substances. It is remarkable that the nitrogenous parts of plants, chiefly of the lower orders, sometimes present both forms and properties which approach to those of animal organisms; for example, the zoospores of seaweeds, or those parts by means of which the latter multiply themselves. These zoospores, on leaving the seaweed, in many respects resemble the lower orders of animal life, having, like the latter, the property of moving. They also approach the animal kingdom in their composition, their outer coating containing nitrogenous matter. Directly the zoospore becomes covered with that non-nitrogenous or cellular coating, which is proper to all the ordinary cells of plants, it loses all resemblance to an animal organism and becomes a small plant. It may be thought from this that the cause of the difference in the vital processes of animals and plants is the different amount of nitrogenous substances they contain. The nitrogenous substances which occur in plants and

animals appertain to a series of exceedingly complex and very changeable chemical compounds; their elementary composition alone shows this. Besides nitrogen they contain carbon, hydrogen, oxygen, and sulphur. Being distinguished by a very great instability under many conditions in which other compounds remain unchanged, these substances are fitted for those perpetual changes which form the first condition of vital activity. These complex and changeable nitrogenous substances of the organism are called *proteid substances.* The white of eggs is a familiar example of such a substance. They are also contained in the flesh of animals, the curdy elements of milk, the glutinous matter of wheaten flour, or so called gluten, which forms the chief component of macaroni, etc."—(*Mendeleeff.*)

The elementary substances required for plant life are carbon, hydrogen, oxygen, nitrogen, potassium, calcium, magnesium, phosphorus, iron, chlorine and sulphur. All the other elements, as well as oxygen, for the most part, must be combined with one another in some form to be of use to the plant. The mineral substances which are taken up by the roots of the plant may be grouped as follows:

Sulphates		Potassium
Phosphates	of	Calcium
Nitrates		Magnesium and
Chlorides		Iron

Nitrogen in the form of nitrates and as ammonia is taken up by the plant through its roots. Carbonic acid, which is next to water in the amount utilized by plants is taken up by them through the medium of the leaves. In the leaves of plants, mostly on the underside, are numerous minute openings leading into the interior. Air passing through these carries with it carbonic acid, which is absorbed by the leaf cells. The feeding roots of plants are clothed with minute hairs, which by diffusion take up water from the soil, together with mineral matter and nitrogen compounds in solution. Through the absorption of these substances the plant manufactures the albuminoids, carbohydrates, and hydro-carbons found in vegetable tissue. The *animal* feeds on these complex vegetable compounds and in the process of digestion *strips the cellulose covering from the vegeta-*

ble cells and returns to the soil and atmosphere the inorganic matter from which they were manufactured by the plant; in the form, *i. e.*, carbon dioxide, water, ammonia, and certain salts. The plant, therefore, converts simple inorganic compounds into organic compounds, while the animal reduces complex organic matter to its simple inorganic constituents. The animal requires for the process of reduction, a constant supply of oxygen, which is withdrawn from the atmosphere and returned to it in the form of carbonic acid, representing one of the end products of oxidation of the carbon of its tissue and food. Plants on the other hand absorb carbonic acid, and under the influence of sunlight, by the action of their chlorophyll, break up this carbonic acid, incorporate the carbon in their tissue, liberate free oxygen and return it to the atmosphere. The plant absorbs what the animal excretes and the animal absorbs what the plant excretes.

From this explanation it will be seen that the *proteids* of *blood* and *plants* are similar, with the *exception* that in the case of the plants, the proteid cells are incased in cellulose (woody fibre) shells, while the wall of the blood cell is a nitrogenous membrane that is composed almost entirely of soluble proteid matter.

After the Blomo Company have removed the water from the blood they secure a solid that is almost pure protein, all of which is digestible. It is needless to add that it is the digestible proteids in food that produce the muscle, tissue, etc.; therefore, when you feed an animal proteids of blood, which is practically protein that has previously gone through the digestive process of other animals and is therefore almost naked protein (totally digestible), the animal economy is saved the expenditure of much energy in the utilization of such proteids, and in accordance with the law of conservation of energy, the saving must show in other ways, *i. e.*, endurance, activity and vitality.

DR. W. W. YARD has been appointed by the Department of Agriculture to the work of investigation of scabies in cattle and sheep, covering Colorado, Wyoming and Nebraska. His headquarters is at Denver, Col.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

A PECULIAR SYMPTOM DURING AN ATTACK OF ACUTE INDIGESTION.

By ROSCOE R. BELL, D. V. S., Brooklyn, N. Y.

Oct. 13, 1904, I was called to the stables of the Taylor-Plate Milk Company, Butler Street, this city, and was shown a black draught gelding, seven years old, 1,500 lbs., in excellent condition in regard to flesh. The foreman of the stable explained that he had been to Jersey City during the night hitched with a mate to a milk truck; that he had returned in good shape, and had received proper care before being placed in his stall. About 7 A. M. he was observed to be having colicky pains, and was given a simple drench of laudanum, nitre, and ginger; he was back-raked, and some rather soft fæces removed. The pains continuing and purging being rather copious, my office was called, and I personally responded about 10 o'clock. I found the horse manifesting the following symptoms: He was quite uneasy, sweating, very drowsy and unsteady on his legs; had appearance of being very *sick*. Pulse 50, strong and full; temperature *ninety-five* (95°) *degrees Fahrenheit*. His tail was saturated with liquid fæces; stood with front legs well apart, as though propping himself to keep from falling, much in the manner of a horse in the last stages of a fatal lung disease. I administered a capsule of fluid extracts of nux vomica and belladonna, but he refused to swallow, standing listlessly, but occasionally coughing. His respirations were slow, and it did not appear that he had received the colic drench into his windpipe. We busied ourselves in rubbing his belly with a stimulating liniment and covered the surface with a warm blanket. When this was completed the animal gave a cough and the capsule was deposited upon the floor, having laid in the pharynx for about ten minutes. He was now so weak that his head dangled upon the end of his neck, and, although I wished to have his legs rubbed and bandaged, I would not have done so for the price of the horse when in good health, so much did I fear that he might at any moment tumble in a heap upon the floor. Every few moments I would consult his pulse, expecting to find it running

down, but it never varied from fifty beats per minute and its character was as good as though he were in perfect health. Being unable to administer medicines orally, I gave 10 c.c. Tallianine intrajugularly, and left him for an hour. On returning, found my patient in much the same condition as when I left him. Administered nux and belladonna solution with syringe, and left some to be given hourly. This was about noon. At 4.30 P. M., accompanied by Dr. Clarence E. Shaw, I visited the patient, and found him lying down, some flatus passing, but evincing no acute pain. On being urged he arose with some difficulty; but was much brighter and steadier upon his legs, so that they were rubbed and bandaged. Two thermometers were simultaneously inserted into his rectum and left there for two minutes, each registering 95.2° F.; pulse of same character as previously described and 48 per minute. 10 c.c. Tallianine were again injected into the jugular and the nux and belladonna continued.

At 8.30 P. M. I again visited the patient, and found him standing comfortably in his box eating hay with apparent relish. His pulse was now 46, strong and tranquil; his temperature 100.5°; his skin warm and moist; peristalsis distinct on each side; visible mucous membranes normal. There was now no doubt but that all danger had passed; so instructions as to his care for the night were given.

The conditions on the following morning were very satisfactory—temperature 102.5°, pulse 42, respirations 16; bowels had moved twice during the night; fæces of normal consistency.

On the following day all symptoms were normal, and the horse was discharged.

This case is reported on account of the extreme subnormal temperature and the strong, almost normal pulse. The author does not here attempt an explanation of this phenomenon.

A REMARKABLE RECOVERY FROM OSTEO-POROSIS.*

By Dr. Werner Runge, Newark, N. J.

I will state to begin with that I will not go into the details of the different theories regarding the cause of this disease, but will give you the history of a far-advanced case, show the picture of same after four months' treatment, and produce the animal to show his present condition, three years and four months from the beginning of observations.

* Read, and patient exhibited, at the 14th Annual Meeting of the New York State V. M. Society, at Brooklyn, Sept. 13–15, 1904.

On a trip to Summit, Morris County, New Jersey, on May 16th, 1901, a farmer called my attention to a diseased colt, which had been sent there from a stock-farm at Short Hills, New Jersey, to be killed.

Upon examination I found a sorrel stallion, three years old, in a most pitiful, emaciated condition, with all the visible bones and joints more or less enlarged. The sub-maxillary bones were enlarged to such an extent that the rami filled almost the sub-maxillary space. The superior maxillary and nasal bones were enlarged to such an extent that the nasal passages were almost occluded and respiration was interfered with so much that the animal was starving to death for want of food on account of his intense and continued struggle for air.

The skin covering the superior maxillary and nasal bones was stretched so much that the hair had fallen out and the tissues had assumed a purple color. My largest halter with 31-inch muzzle was not large enough to fit the animal. The teeth, so far as the condition of the animal would permit examination, were found to be loose in their sockets.

As the farmer had intended to destroy the animal the following day, I offered to take it off his hands, and had it removed to my place in an ordinary platform truck during the night. Tracheotomy was performed next morning, and the animal got immediate relief, which was followed by a coughing spell, causing a discharge of an immense amount of mucus. These coughing spells continued for about four weeks and the discharge of mucus was so profuse that we were compelled to remove and clean the tube at least three times every day. The removal of this mucus gave the animal so much relief that I am inclined to believe that the condition of the lungs caused much of the animal's original distress, as it prevented the access of air to the pulmonary tissue. It is a surprise that abscess formation did not take place. After having relieved the respiratory distress, my first aim was to introduce a rational plan of feeding, which consisted of a moist diet, composed of crushed beans, barley sprouts, crushed rye, with cut hay, morning and night, with oats at noon. To each meal I added about one and a half ounces of bone meal, which consisted of bones treated with sulphuric acid, afterward the acid is thoroughly washed out, leaving the inorganic salts of the bone in a granular form. Together with the above I fed the animal as much clover hay as he could be induced to eat. This diet continued for about ten months, but after four months he had so far im-

proved that he could be moderately driven. During the entire course of treatment no medicine of any kind was administered. An interesting observation was made that the animal displayed almost furious appetite for common salt, consuming the first month about 25 lbs. of rock-salt.

This animal was shown at the meeting of the N. J. State Veterinary Medical Association on July 11th, 1901, and was at that meeting castrated by Dr. W. E. B. Miller, and those who were present will recall his condition at that time.

The tube was removed Aug. 8th, 1901, from which time he had continued to improve until he had reached the condition you find him in to-day.

The absorption of the hypertrophy of the bones dates almost from the time of beginning treatment, or as soon as the animal had been given relief and proper nourishment.

My observations on this and other cases of the same disease, lead me to believe that osteo-porosis can best be treated by attention to the nourishment and proper selection of the food for the animal, than by any other measures that have been suggested.

INCOMPLETE RUPTURE OF THE STOMACH.

By FRANCIS ABELE, Jr., D. V. S., Quincy, Mass.

Was called to a dealer's place to see a horse that was being boarded and turned out for a patron of us both. Horse was in pasture, well up in corner of a stone wall. Did not eat or act interested in its own welfare. It had a yellowish white discharge, often tinged with green food if its head drooped, or after allowing water. It was a question if any water entered stomach, as some seemed to be swallowed, but on head lowering all water and much curdy mucus poured away. Suspected a partial thoracic obstruction of œsophagus. Had no history except that horse had begun discharging the day before I saw him. Prescribed peroxide dilute as a nasal drench to remove catarrhal material about nose and pharynx. Came next day to find him dead.

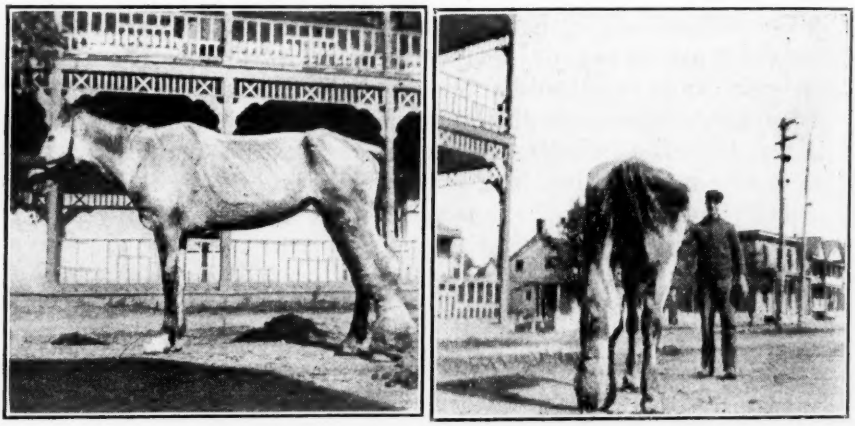
Post-mortem.—Œsophagus healthy; pharynx, larynx and trachea inflamed, discolored with a purplish color, and some catarrhal mucus and green food on mucous surfaces. Abdominal cavity full of blood; no ingesta with it, however. Intestines healthy, stomach covered with clotted blood. Brushing this off, there was found a big three-direction tear of the serous and muscular coats, but the mucous coat was intact. I have

seen many complete ruptures, but never an incomplete one.

I thought I had discovered a new case to add to our terrible array of colics, but found a similar one reported, with a good description. Was this condition due to over-distension? If so, what relieved it? Why was the mucous coat saved? Is it probable that the horse had such a colic and the keeper not know of it?

TWO VIEWS OF A CASE OF ELEPHANTIASIS.

Dr. H. B. Ambler, of Chatham, N. Y., who is an ardent amateur photographer, puts his camera to the good use of repro-



ducing interesting and unusual cases met with in practice and in his inspection work for the State Department of Agriculture. He has promised to furnish some of these to the REVIEW from time to time, and this month we give his first instalment.

A TRIPLE ATTACK OF TETANUS IN A MULE.

By A. JASME, V. S., Savannah, Ga.

On page 672, October number of the REVIEW, I notice an extract by Prof. A. Liautard, M. D., V. M., entitled "A Double Attack of Lockjaw, with Recovery." Not being aware of the rarity of such cases, I did not report a similar case in my practice, with the exception, however, that I must call mine a triple attack of lockjaw, with recovery.

The patient, a mule, weighing about 1200 pounds, named "Raleigh," the property of the city of Savannah, had lockjaw three times—*1896*, *1901*, *1903*—and is to-day one of the best working mules in the scavenger department. Each case, to the

best of my recollection, lasted five or six weeks. I cannot give exact dates, as this work is done by contract, and no record kept, with the exception of the first attack, which occurred in April, 1896, and was treated six weeks.

Maybe in this case the old saying "too mean to die," is applicable: "Raleigh" is the meanest mule I know, and even to-day (he must be 18 years old), he does not fail to make quick connections with his attendant's anatomy whenever he desires to clean his shoes.

"Raleigh" having been in the city service for many years, the above statement can easily be verified.

SCABIES IN CATTLE.

Dr. J. V. Laddey, Inspector Bureau of Animal Industry, contributes the above photo of a cow in Ouray County, Colorado, affected with scabies, the picture having been taken April 21, 1904.

ANOMALIES MET IN CATTLE PRACTICE.

By FRANCIS ABELE, Jr., D. V. S., Quincy, Mass.

At one farm I attended four different cows raised on the place, for barrenness, some two years or more ago. The other day I attended one of a near neighhor's, by the same bull. In this last one the os, instead of projecting into the vagina, seemed to be a mere navel-like irregularity on the surface of the vaginal wall. Was this not possibly a hereditary peculiarity?

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

INTUSSUSCEPTION OF THE SMALL INTESTINE IN A HORSE [*E. E. Martin, A. V. D.*].—The animal was admitted to treatment at first for a simple catarrh, which after a few days grew worse. The great elevation of the temperature, the excessive difficulty in breathing indicated serious trouble. The lower part of both lungs was taken. The thermometer registered between 103° and 104° F. There was no appetite, and now and then a rusty discharge from the nostrils. On two occasions there was abundant hæmorrhage. Diarrhœa set in three days before death, which occurred after three weeks of sickness. At the post-mortem there were found three forms of diseases—pneumonia, intussusception of the small intestine, and rupture of the stomach. The lungs were consolidated. The part of the intestine where the intussusception existed showed that four inches of the organ were involved. The peritoneal surfaces being so firmly adherent that the intestine was torn while attempts were made to separate them. The rupture of the stomach measured seven inches in length. About a pound and a half of food had escaped and collected into a sac formed by the great omentum. It is curious that this horse during its whole sickness had never shown any trouble towards the digestive canal, nor any of the urgent symptoms that the lesions suggested. This was probably due to the absence of alimentary substances not having entered the peritoneal cavity.—(*Journ. of Comp. Path. and Therap., June, 1904.*)

EXCISION OF THE VASA DEFERENS AS A SUBSTITUTE FOR CASTRATION [*J. Tagg, M. R. C. V. S.*].—According to the author, natives in India have observed that when the vasa deferens become obliterated, because of disease or by traumatisms, atrophycal changes occur in testicles. Accepting as a physiological truth, that all the function of an organ is regulated according to the demand, the author has thought that by excising a portion of the vasa deferens, and destroying all communication between the testicle and the vesicula seminalis, there might result a testicular atrophy which could take the place of castration.

Mr. Tagg believes that the plenitude of the vesicula seminalis regulates the sexual desire. If, then, the vesiculæ become atrophied, and if by the excision of the efferent duct, they are not filled again, the testicles also become atrophied. He has operated upon three stallions which he has been able to follow, and the results he has obtained were excellent. The three animals were afterwards kept among other horses and mares, and behaved very quietly. He also operated on three others, which he lost sight of after the operation. This is quite simple. The animal is cast, secured, and chloroformed. An incision is made about two inches above the testicle, along side the cord and a little backwards to avoid the blood vessels. The vasa deferens is easily detected by its white color. About an inch of its length is made loose by dissection, a ligature of catgut, well sterilized, is applied at both ends, and the portion between is excised. The skin is sewed up, iodoform dusted over the incision and sublimate solution used for dressing afterwards. It is necessary to make an incision on each cord.—(*Journal of Comp. Path. and Ther., June, 1904.*)

SUTURE OF THE RECURRENT NERVE TO THE PNEUMOGASTRIC AGAINST ROARING [*J. Tagg, M. R. C. V. S.*].—In 1896 the author reported the case of a mare on which he had operated. To-day he gives the history of five other cases where he resorted to the same treatment, viz., the suture of the free portion of the recurrent, which runs along the œsophagus to the pneumogastric. The animal is cast and chloroformed. The seat of the operation shaved and disinfected. The recurrent is easily exposed and found on the œsophagus, while the par vagus rests on the carotid. The former is sutured to the latter with carbolized catgut thread. The muscles and skin are sutured and an antiseptic placed over the parts. The five animals upon which Mr. Tagg has operated were all useless because of roaring and unable to perform any kind of work. After the operation, the first horse was able to walk without making any noise; he worked slowly. The second died three months after from tetanus due to a nail picked up in the street; the three others resumed their work, one of them as a saddle horse, and became able to canter a distance of seven miles—every one without making the slightest noise of roaring.—(*Journ. of Comp. Path. and Ther., June, 1904.*)

ULCERATIVE CYSTITIS—RUPTURE AND PYELO-NEPHRITIS IN A DOG [*F. J. Taylor, M. R. C. V. S.*].—A two-and-a-half-months old puppy is ill. A dose of castor oil did not seem to

relieve him, and he was brought to the author, who diagnosed catarrhal cystitis. The dog was in a dreamy condition, with temperature of 104°, quick, feeble pulse, hyperæmia and slightly discolored mucous membranes. He passed blood-stained urine in drops. Manipulation of the abdomen revealed a painful doughy mass about the size of a small hen's egg, situated in the anterior pelvic region. The dog died the next day. At the post-mortem the bladder was found empty, with a partial rupture, closed up by a calculus embedded in it sufficiently to prevent the rapid escape of urine in the abdominal cavity, but yet allowing a certain amount to percolate through and produce irritation. There were no other calculi in the urethra, ureters or kidneys, but these two contained pus in their pelvic portion and the seat of acute nephritis. It is an unusual occurrence to meet cystic calculi in so young a dog. The other members of the litter were all healthy and received the same food.—(*Vet. Record, July 30, 1904.*)

CARCINOMA OF THE TESTICLE—TWISTED SPERMATIC CORD IN A CRYPTORCHID [*W. Paner, M. R. C. V. S.*].—Aged nine years, a deerhound, for the last twelve months, has had difficulty in defecating; lately even purgatives failed, and to relieve him it had been necessary to remove the fæces by hand. The rectum is largely dilated and sac-like, so that large masses of matter can collect. When the dog attempts to defecate he is in great pain and even when its rectum is emptied. On examining the abdomen, a hard round body, easily displaced, is felt, which was supposed to be a testicle, when the information was given that the dog was a cryptorchid. Considering the case hopeless, the animal was destroyed. At the post-mortem it was found that the round body felt in the abdomen was the right testicle, enlarged and in a cystic condition. The spermatic cord was twisted eight times reversely with the vein distended so that the cord had a corkscrew appearance. The testicle weighed two ounces and carcinomatous. The other testicle was atrophied and weighed only two drachms.—(*Vet. Record, Aug. 6, 1904.*)

TWO MARTYRS TO SCIENCE—TOXICOLOGY [*Doctor Sahib*].—These are the histories of two dogs which died from carelessness in the application of a proper treatment. One had a long standing necrosis of the jaw affecting the bones of the face and the ear. A two-ounce solution containing 7¾ grains of perchloride of mercury was prepared, to be diluted for cleansing the parts. Unfortunately the whole of it was injected into the

ear. The next day the necrosed parts looked improved, but high temperature, dry nose, and costive bowels indicated mischief. In the evening, the dog looked as if he had a bad attack of foot-and-mouth disease—that is, as far as the head was concerned. He finally exhibited all the symptoms of poisoning by hydrar. perchlor. and died in five days. The other was a three-year-old animal which had been under treatment for malaria; he had fairly recovered, and to build him up 5 m. of tinct. nux vomica was prescribed, twice a day, for three days only. Instead of that the treatment was kept up for eight days, and in the evening of the last day a double dose was given by error. Of course, strychnia poisoning soon became manifest and the dog died in four days.—(*Vet. Record, Aug. 13, 1904.*)

PECULIAR INTESTINAL CONDITION IN A HORSE [*P. T. Bolton*].—A six-year-old mare was taken with colic, which resisted the administration of several draughts. She received ext. cannabis indica, was relieved, and the next day had a purgative given to her. A week later the same condition recurred, and the animal treated in the same way. However, she did not rally so well, and tonic medicine was given. As it had been necessary to give her eserine after the second attack, intestinal calculus was suspected. A few days later the mare died with septic pneumonia. At the post-mortem the lungs were found gangrenous. On looking for the intestinal calculus, none was found, but instead "a peculiar condition of the ileum and ileo-cæcal valve. This was much constricted; in fact, almost closed, so that it was impossible to pass the little finger into it, and the ileum immediately before the valve was enormously dilated, giving it an appearance resembling a second stomach." The walls of that part of the intestine were thickened. Other portions of the small intestines were also more or less dilated and had likewise thickened walls.—(*Vet. Record, Aug. 20, 1904.*)

AN OUTBREAK OF INTUSSUSCEPTION IN PUPPIES [*Aleen Cust*].—What can have been the cause, asks the author? Five puppies, from 8 to 10 weeks old, although from different litters, were raised together, fed in the same way, and received the same care and attention. They were kept among a number of other pups. The five died of the same trouble. The first was first relieved by an injection of glycerine, but died two days after. The second with the same symptoms, but much more severe, died in a few hours. For the third, the X-Rays failed to enlighten the diagnosis. Notwithstanding all that was done he also passed away. In the fourth, laparotomy was performed, followed

by death a few hours later. The fifth had the same end. In all, intussusception was found at the post-mortem, in various parts of the small intestine. The general symptoms were abdominal pains, vomiting, jaundice, complete anorexia, tendency to lay flat on the sternum or abdomen, and elevation of temperature. All the other puppies of the kennel remained healthy. The diagnosis was difficult to make, as the intussusception could not be felt by manipulation of the soft and fat abdomen and also because of the absence of manifest symptoms which were present only when too late to apply a successful treatment.—(*Vet. Record, Sept. 3, 1904.*)

WOMAN SAVES SIXTY HORSES FROM PERISHING BY FIRE.—It was due to the courage of Mrs. Anna Ritter, of No. 607 West Forty-seventh Street, that sixty horses were saved from death by flame and smoke in a livery stable owned by Terry McKeon, at Nos. 601-605 West Forty-seventh Street, at eleven o'clock last night. Shortly before eleven o'clock Mrs. Ritter was awakened by smoke pouring into her bedroom window. She realized that fire had started in the stable next door. Dressing hastily she ran down stairs and called for help. The street was deserted. There was no one in the stable. She found the doors partly open and smoke pouring through the crack. Being familiar with the stable she threw back the doors, and, half stifled by the suffocating fumes, ran to the further stalls. The horses were excited, but without fear Mrs. Ritter unfastened two of them and tried to drive them from the stable. They refused to leave their stalls. She led them to the street door. At this moment two young men coming from a political meeting around the corner in Eleventh Avenue saw the situation and obeyed the advice of the woman to turn in an alarm. For several minutes, while the department was responding, Mrs. Ritter turned many of the horses into the street. Others she led to the boys, who refused to venture into the burning building on the excuse that they did not know the location of the stalls. Every minute the flames were shooting higher in the rear of the barn, while the smoke drifted in denser clouds. Still the woman stuck to her task. By the time the Fire Department reached the burning stable Mrs. Ritter had gotten the sixty horses into the street, and then she collapsed. The firemen made short work of the flames, and Mrs. Ritter was warmly praised, for had it not been for her prompt action in entering the burning stable a majority of the animals would have perished.—(*New York Evening Telegram, Oct. 22.*)

ARMY VETERINARY DEPARTMENT.

DR. SCHWARZKOPF ON THE MARCH.

Dr. Olof Schwarzkopf, editor of this department of the REVIEW, has been in camp and on the march since early in August, and consequently his supervision of his literary labors has been somewhat relaxed.

A letter from him, dated Great Falls, Montana, Oct. 13, stated that in consequence of his enforced absence from his Fort, the Army Bill had not gone forward with the push that had been intended; but that he expected to return to Fort Assinniboine by the 19th or 20th ult., and then he would do all in his power to promote its rapid passage through the proper military channels. The Bill had, however, been passed on to Dr. Plummer for the Cavalry and Dr. Griffin for the Artillery, who promised to secure the necessary official endorsements.

While in Helena the Doctor called upon President Knowles, of the A. V. M. A., who showed him great courtesy and hospitality. Together they went over the events of the St. Louis meeting, and the complexion of the Army Committee of the Association was thoroughly discussed. This Committee stands ready to assist the military veterinarians in any way that seems to offer prospects of success. It will, however, this time wait until the Bill is favorably endorsed by the Secretary of War, and then it will do whatever is possible with the Army Committees of Congress.

* * *

THE NEW ARMY VETERINARY BILL APPROVED IN THE PHILIPPINES.

MANILA, P. I., August 31, 1904.

Editors American Veterinary Review:

DEAR SIRS:—I take the opportunity to state my views as to the desirability of the bill drafted by Dr. Schwarzkopf, and express my views of the veterinary service at present. I believe, it is not so much what we want, as it is what we can get. I notice by the correspondence in the REVIEW that no bill seems to meet the approval of all, since each one has an idea of his own. That may be all right, but when we come to action let us all be united in whatever move is to be taken; I for one am ready to support any measure which will advance our status in the Army.

We cannot expect to get all at once, but if we can get started it will come in time.

If we could make the position of veterinarian to the Quartermaster's Department one similar to the regular service it would be a step in the right direction. As it is now, it is a serious drawback to us all. Men are employed as such who are not even graduates of veterinary colleges, but, having taken a course as teamster or possibly acted as farrier under some veterinarian, they announce themselves as veterinarians and apply to some quartermaster for such position and are employed.

I am fully convinced that the full efficiency of the service can never be reached until we have a separate corps and farriers enlisted for such work and directly under the veterinarians, but such a thing is a long way off in the U. S. Army, for all officers look unfavorably upon the idea of veterinarians having equal rank.

As it now stands, all depends upon your commanding officer. If he has confidence in the veterinarian he will give him every opportunity to carry out his work according to his ideas; if it be otherwise the veterinarian is greatly handicapped in his work, and often humiliated by troop commanders giving orders to farriers pertaining to treatment of horses.

Some time ago General Corbin expressed his views that a second lieutenant's pay was not enough to support him if he were to marry, owing to the expense to maintain his social standing. How is it with the veterinarian? Is he to remain single and always draw the pay of a second lieutenant, and yet be expected socially to keep up with the officers with whom he must necessarily associate? This appears like a grave injustice to us.

At present with the Philippine service, veterinarians are subjected to frequent moves, which are expensive; also the increase of living in foreign possessions, without the extra ten per cent. increase which all officers receive, and complain of its being inadequate to meet the extra expense.

These, and many other things, do not tend to increase the efficiency of the service, which the War Department claims to have in view.

CHAS. H. JEWELL,
Veterinarian 13th U. S. Cavalry.

* * *

ARMY VETERINARY NOTES.

DR. J. H. GOULD, Vet. 11th U. S. Cavalry, who has been on

temporary duty at Fort Des Moines, Iowa, for the past four months, is now located at Fort Riley, Kansas.

DR. POWERS, Artillery Corps, is on a leave of absence for one month and twenty days.

DR. MCKIBBEN, 4th Cavalry, has been ordered to Walla Walla, Washington, where he will be stationed with the headquarters of the 4th Cavalry.

DR. LAWRENCE, 5th Cavalry, after taking a long sick leave from the Presidio of San Francisco, Cal., is stationed at Fort Apache, Arizona.

WE have in hand an illustrated paper entitled "Clinical Study of Lameness," translated from the German of Dr. Chenot-Alger, by Dr. A. T. Peters, of Lincoln, Neb., and read before the recent meeting of the Iowa-Nebraska Veterinary Medical Association. It will be published in the December REVIEW, with reproductions of all the original plates.

A NEW LOCAL ANÆSTHETIC CALLED "STOVAINE" will soon be introduced to the veterinary profession by Messrs. Sykes & Street, the American agents for "Tallianine." Its advantages are said to be that it will anæsthetise a part more thoroughly than cocaine, is absolutely devoid of toxicity and excitability, and costs about one-half as much as the alkaloid of coca.

ANSWERS TO CORRESPONDENTS.—*E. E. H., Pennsylvania:* As you should know, the article printed at the foot of page 666 of the October REVIEW, does not reflect any knowledge or information possessed by the editors concerning the illness of the famous pacing stallion "Dan Patch," but was copied from the *Breeder's Gazette* and properly credited to that journal. We have, however, sought definite data in regard to the character of the sickness referred to, and we are credibly assured that his only lesion was simple fæcal impaction. It would not have been impossible for the great side-wheeler to have had a twisted or intussuscepted bowel, and still have recovered, but the unlikelihood of either of these accidents to have existed and to have been followed by such rapid recovery, was the occasion for our seeking professional information. You have taken no liberties with the REVIEW; we are pleased to have had you go more deeply into this subject, as the article quoted from the *Gazette* read very like a "fairy" story.

H. W. KORNOBIS, V. S., of Brooklyn, N. Y., is building a hospital for his practice on Bedford Avenue, near Myrtle.

CORRESPONDENCE.

THE NEED OF UNIFORMITY OF VETERINARY TITLES IN AMERICA.

ROCKY FORD, COLO., Oct. 12, 1904.

Editors American Veterinary Review:

DEAR SIRS:—I notice an article in my last REVIEW (October No.) regarding uniform veterinary title for Germany. Am glad you commented upon it, and hope you will make further mention of it, for if there is anything in the profession that seems absurd and absolutely foolish to me, it is in so many titles. I think our sister profession (the M. D.'s) look upon us with considerable mirth when they see the various titles. It looks to me like a lot of little boys that wanted something, they hardly knew what. I think that the A. V. M. Ass'n ought to take this up and settle this foolish affair so we can no longer be looked upon and laughed at by the world. If we have a uniform title, people will know what it means when they see it affixed to our names. Otherwise, our title is meaningless to the people. I have a degree from a well recognized college of Chicago which I am ashamed to use on account of this diversity of titles. Yours very respectfully, SETH P. TALBOT.

THE HABIT OF TONGUE-LOLLING—WHO CAN HELP DR. DREW?

GRAND JUNCTION, COLO., Oct. 17, 1904.

Editors American Veterinary Review:

DEAR SIRS:—One of my patrons has a five-year-old standard-bred mare which has the habit of lolling the tongue when driving. Her mouth and teeth are in perfect condition. I can discover no cause, except habit. I have used nose-bands, chin-straps and, I think, all bits ever invented for that trouble, and some of my own invention, without success. If you could give me any advice through the columns of the REVIEW, to which I am a subscriber, I would be greatly obliged.

Yours truly, A. P. DREW, V. S.

"FARMING AS A PROFESSION" was the subject of a paper by Dr. W. H. Dalrymple, of Louisiana, read before the Association of Commissioners of Agriculture of the Southern States, held at Baton Rouge, La., Oct. 13–15.

BIBLIOGRAPHY.

In number 12 of the *Monatschrift für practische Thierheilkunde*, Professor Fröhner gives a review of the latest German veterinary publications, a few of which may be of interest to the profession in this country.

MERCK'S YEARLY REPORT OF 1903.

Fröhner enumerates the newer medicinal agents of interest to the veterinarian. (This report can be had at any of Merck's branch houses for the asking.)

LEHRBUCH DER ALLGEMEINEN PATHOLOGIE, für Thieraerzte und Studirende, by Prof. Dr. Th. Kitt, of Munich. Published by F. Enke, Stuttgart, 1904.

Of this book Fröhner says that it fills a long-felt want in the line of veterinary text-books, and that it is the first step to emancipate veterinary pathology from the human branch of this science. As a text-book it will satisfy the highest scientific expectations because Kitt wrote it. The important fundamental principles of pathology are treated with brevity and intelligibility. He concurs with the author on the question of the etiology of tumors, exhibits his satisfaction that Kitt expresses himself against the parasitic and for the germ theory, and closes by saying that he always presented the same views in his lectures and clinics on general veterinary surgery.

LEHRBUCH DER VETERINÄRCHIRURGIE. By Dr. Med. Joseph Bayer, Professor and Rector of the Imperial and Royal Institute for Army Veterinarians and the Veterinary High School of Vienna. Third revised edition. Published by W. Braumueller, Vienna and Leipzig, 1904.

Fröhner says: The fundamental text-book by the past master of scientific veterinary surgery, has appeared as the third revised edition after an interval of 14 years, and gives the best view of the achievements of veterinary surgery in the last decade. It has been enriched with 12 very instructive plates, with pictures of numerous fractures, exostoses of spavin and ringbone, necrosis of the bones, caries of the teeth, sarcoma of the bone, actinomycoses, etc. A few excerptions of the work are herewith given.

The treatment of inflammation through arterial and venous hyperæmia after Bier, is discussed with great thoroughness and an apparent fondness, showing that different opinions exist to-day about certain causes, symptoms and treatment of inflammation. The hydro-thermo-regulator of Ullmann is spoken of very highly, saying that it allows of an exact dosage of the locally applied

heat and aids resorption through the generation of hyperæmia and dilatation of the vessels. Bayer says that he had phenomenal success with the hydro-thermo-regulator in thickening of tendons; even in old, said-to-be incurable cases, that had become cartilaginous, resorption was established and some were cured entirely, while some were greatly benefited by it.

Under laminitis, Bayer coincides with Fröhner that the principal form of laminitis is the traumatic, caused by over-exertion on hard ground. But Bayer is of the opinion that lacerations and not contusions of the sensitive lamina are the traumatic cause and explains that the os pedis is suspended by the sensitive lamina from the horny wall. The changes seen on a laminitic hoof are not due to the traction from the flexor of the toe alone, but only appear when on account of the inflammation the connection between the horny and sensitive lamina has been loosened, and before this occurs the laceration and extension of the suspensory apparatus must take place.

The chapters on tendonitis, exostoses and spavin contain very extensive discussions of the subjects. Bayer calls attention to the investigations of Gotti, which prove that the inflammation in the spavin is most always a primary inflammation of the bone and not of the joint, and says he has convinced himself of the correctness of the theory.

Under the chapter on wound treatment Bayer, the champion of asepsis, concurs with Fröhner that for practical reasons antisepsis is preferable to asepsis in veterinary medicine.

The chapter on diseases of the eye treats the question of the heredity of periodical blindness. Bayer, the foremost veterinary ophthalmologist, answers the question as follows: When a pregnant mare suffers from periodical blindness that it is possible and has occurred that the young one has gone through the disease in utero and has been born with the sequels. I have myself acquired such a little animal for the college. That a stallion suffering from periodical ophthalmia should in a healthy region produce colts suffering from the same disease, is in my opinion not true, and if his progeny should become moonblind in a diseased region so is this the fault of the region and not of the stallion.

Under the section of paralysis of nerves the prognosis of paralysis of the supra-scapular nerve is discussed. The prognosis is given as not very favorable and depends in principal upon the kind of injury to the nerve.

(WM. SCHUMACHER, CHICAGO, ILL.)

OBITUARY.

DR. E. A. DE SCHWEINITZ.

Few men in this country are so eminently qualified to carry on investigations in the special field of biochemistry of sera and pathogenic bacteria as was Dr. E. A. de Schweinitz. In his death, science suffered a loss which is felt more keenly on account of the comparative scarcity of men capable of carrying on his chosen line of work.

Dr. de Schweinitz died at the age of 38 in the very prime of life. He suffered from a severe attack of typhoid fever about one year previously and never completely recovered his normal health. Dr. de Schweinitz worked assiduously, however, until the end, leaving several unfinished pieces of investigation.

Dr. de Schweinitz was excessively modest regarding the value and results of his work and was of a somewhat uncommunicative disposition. He possessed a very attractive personality, however, and was greatly admired by all who knew him well. His conscientious attention to details was manifest not only in the accuracy of his methods and the reliability of his results, but also in his personal appearance and performance of the little duties which are so necessary to the amenities of social life. His frankness and generous disposition were shown equally well in the treatment of his personal friends, and in the recognition of the value of results obtained by his scientific co-workers. If there was anything in Dr. de Schweinitz about which we might complain it was a certain diffidence or slight lack of confidence in the results of some of his own researches.

Dr. de Schweinitz was born at Salem, North Carolina, and received his education at the universities of North Carolina, Virginia, Berlin, Göttingen, and also at the Columbian University in Washington, D. C. His official connection with the Bureau of Animal Industry of the U. S. Department of Agriculture began with an appointment as chemist on January 1, 1890. Upon the organization of the Biochemic Division of this bureau, Dr. de Schweinitz was made the chief of the division. In addition to the various investigations which occupied the major portion of Dr. de Schweinitz's time and energy, he was a member of many American and foreign scientific societies and was repeatedly selected as a delegate to international congresses of hygiene, tuberculosis, and medicine.

The investigations for which Dr. de Schweinitz was chiefly

noted were made in the field of the chemistry and biology of bacteria. His contributions to these subjects are of the utmost importance and his studies have served to elucidate many of the troublesome problems concerning the ultimate chemical nature of bacteria and their products. He was one of the first to suggest the possibility of producing immunity toward tuberculosis by inoculation with attenuated cultures of tubercle bacilli. He announced these results in 1894 in the *Medical News* of December 8. In that article it was stated that a race of human tubercle bacilli which was originally very virulent had been rendered quite harmless by a special method of cultivation. These attenuated bacilli not only failed to produce disease in guinea-pigs and rabbits, but in some instances imparted to inoculated animals a distinct resistance to tuberculosis, as shown by subsequent inoculation with virulent bacilli. These experiments paved the way for the more elaborate investigations of Pearson, von Behring, Arloing, McFadyean, and others, in which the results obtained by Dr. de Schweinitz have been confirmed and greatly extended. Among the many technical subjects investigated by de Schweinitz we may mention the following: Composition of tubercle and glanders bacilli; fats contained in tubercle bacilli; growth of tubercle bacilli upon a great variety of culture media; mineral constituents of tubercle bacilli; the effect of tuberculin injections; the preparation and use of tuberculin; enzyms or soluble ferments in hog cholera bacilli; serum treatment for hog cholera and swine plague; products of tubercle bacilli; treatment of tuberculosis with antitoxic serum and other matters relating to hog cholera, and other diseases. The work of Dr. de Schweinitz in the investigation of hog diseases was of great importance. Not only was considerable progress made in the rational prevention and treatment of these diseases, but many details were worked out which had been overlooked by other investigators. One of the latest discoveries of de Schweinitz along this line was the careful differentiation of the symptoms of different infectious hog diseases, during which it was found that hogs are sometimes attacked by an infectious disease which cannot be classified either with hog cholera or swine plague.

A considerable proportion of the work of Dr. de Schweinitz was done in coöperation with Drs. Dorset and Schroeder, who are continuing researches along similar lines.

(E. V. WILCOX.)

SOCIETY MEETINGS.

MISSOURI VETERINARY MEDICAL ASSOCIATION.

The 13th annual meeting of the State organization was held in St. Louis in the Board of Education Building, N. W. Cor. Ninth and Locust Sts., on August 15th, 1904. The meeting was called to order by President B. F. Kaupp, at 10 A. M. The following veterinarians were present:—Drs. H. Bradley, L. M. Klutts, G. A. Roberts, A. Plummer, Chas. Ellis, S. Stewart, F. F. Brown, B. F. Kaupp, E. B. Ward, L. B. Michael, H. F. Boettner, D. F. Luckey, Stanley Smith, W. E. Martin, T. J. Menestrina, J. M. Phillips, M. McNally, J. P. McNally, V. J. Andre, A. Darling, J. Mahon, A. Trickett, F. A. Goodbody, C. A. Krause, G. B. Nicholas, and others. The address of welcome was delivered by Dr. Chas. Ellis, of St. Louis, and was responded to by Dr. S. Stewart, of Kansas City.

The President then delivered the annual address, as follows:

PRESIDENT KAUPP'S ADDRESS.

"*Members of the Missouri Veterinary Medical Association and Visitors:*

"For the thirteenth time the State Association of the great commonwealth of Missouri has assembled. Missouri should be a profitable field for the veterinary practitioner, as its live stock interests are enormous, especially the world-renowned Missouri mule.

"It is not my intent to occupy much of your valuable time, but to bring out a few thoughts in regard to veterinary conditions in our State. Although we have failed several times to secure a law to regulate the practice of veterinary medicine in the State, we should not give up the fight. Have the stock-owning people been brought to a realization that a law of this kind will be a protection to them from empiricism? The average legislator is apparently noninformed on the subject of veterinary science, and does not realize that the veterinarian should have a substantial scientific training in addition to his practical experience.

"At a meeting of the Missouri Valley Veterinary Association, held in Kansas City in February of this year, a resolution was introduced empowering the President of said association to appoint a committee of three to assist any like committee from any of the adjoining states in an effort to secure needed veteri-

nary legislation. This committee consists of the following members: Dr. A. Plummer, Fort Riley, Kansas; Dr. L. D. Brown, Hamilton, Mo., and Dr. H. Jensen, Weeping Water, Nebr. Our State is within this territory, and the committee will give us aid in securing the proper law to regulate the practice of veterinary medicine in the State. It appears that before needed veterinary legislation can be secured it will be necessary for the stock-raising people to be brought to a realization that it is to their interest to have such law passed, and in order to accomplish this task each practitioner in the State should make himself a missionary to this end. If in each district the stock-owning people would demand of their representative of the legislature that an effective veterinary bill be passed, it certainly would not be long till we would be in line with other states that have been more fortunate than we in securing the proper practice laws.

"There is another question, and that is the problem of securing milk and butter that is a product of cows not tuberculous. While the citizens of St. Louis may be protected from milk contaminated by the contagious germs by having veterinary inspection, some other cities, as for example Kansas City, are not so protected. In the latter city the Council and Mayor created the offices of milk inspector and assistant inspector, paying $210 per month to the two positions, and who did they appoint to the first one? An undertaker. Two men who had not had the proper scientific training. So the people pay the taxes, the money is paid out, and no returns. When people will 'wake up' and demand competent inspection in these localities no one can tell.

"Attention is called to the good work that is being done by the State Veterinary Department. This office was created about the year 1885, and the position has been held by Drs. Paul Paquin, T. J. Turner, T. E. White and D. F. Luckey, the latter being the present occupant of the office. The duties of this office are to investigate the origin and cause of outbreaks of contagious diseases and to control said outbreaks by proper quarantine and prophylactic measures, etc., and to instruct stock-raisers through bulletins and farmers' institutes the best methods of preventing and handling said diseases. While the law requires a petition signed by ten freeholders be sent to the Secretary of the State Board of Agriculture to secure an investigation, a request from a graduate of a veterinary college is honored and an investigation immediately ordered by the veterinary department.

"According to a report received from the present State Veterinarian, there has been no alarming outbreaks of contagious diseases among live-stock the past year. An occasional epizoötic requires the constant vigilant attention of the State Veterinarian, but no outbreak has been allowed to spread so as to cause serious loss. During the past two years numbers of cattle, hogs and sheep have been shipped into this State for feeding purposes, from western and southern ranges and other localities, and with these shipments came some cattle and sheep infested by scabies, and some hogs affected with cholera. He reports the hog cholera to have gained a foothold during the past year and has caused considerable loss in certain localities, but not so great as in former years. Tick fever was found in eight counties in the southern part of the State, four years ago, but by proper quarantine regulations only a few cases were found this year, and they were confined to two counties. Glanders exists in various parts of the State as in other years. The most favorable localities for this disease appears to have been the grading camps. Animals found to be so affected were destroyed and the premises disinfected. Those not affected were quarantined until further danger from disease developing among them had passed. In view of the danger of communication of the bacilli from cow to man through the milk, tuberculosis in cattle has not received the attention it should. The disease is known to exist in several parts of the State, and there can be no doubt that a tuberculin test would prove it widely disseminated. Proper laws should be passed, means put at the disposal of the department, and an effort made to eradicate the great white plague from the State. Various parasitic outbreaks have occurred from time to time, the most serious being pulmonary and intestinal strongylosis.

"The State also maintains an Experiment Station. Dr. J. W. Connoway, the present State Experiment Station Veterinarian, is well known to all present and needs no introduction. This department assists the State Veterinarian in investigation of outbreaks of disease, and conducts original research.

"I would suggest that the incoming President be empowered to appoint a committee on diseases, said committee to investigate and report upon diseases common in the State and suggest methods of control and eradication of those known to be contagious, and to report any original research of interest and new remedies worthy of mention. I would also suggest that the State Veterinarian be made chairman of this committee."

Dr. L. M. Klutts read a paper on the subject of "Aloes in Veterinary Practice," and Dr. S. Stewart read a paper on "Definite Medication." These papers were interesting and brought out a general and instructive discussion. Meeting adjourned for lunch, and reconvened at 1.30 P. M.

The minutes of the previous meeting were read and approved and the following named were admitted to the list of members: Drs. E. B. Ward, Fulton, Mo.; L. B. Michael, Moberly, Mo.; H. F. Boettner, Perryville, Mo.

The following officers were elected for the ensuing year:

President—Dr. Stanley Smith, Columbia.

Vice President—Dr. L. D. Brown, Hamilton.

Secretary-Treasurer—Dr. F. F. Brown, Kansas City.

Dr. T. J. Menestrina read the following paper on

ABSCESS OF THE SPLEEN.

"Some time ago I was called to see a horse that had been taken suddenly ill. On arriving at the place I found a five-year-old gelding suffering from very acute pains, which were apparently abdominal. I ascertained from the owner that the horse had been listless and without vigor for more than a year, and, believing the animal was infested with intestinal parasites, the owner had given about a pint of a decoction of worm-root the previous day, with a view of expelling them. The medicine had been administered through the nostrils and had excited a cough when given. The animal showed unmistakable signs of pneumonia; temperature 105, pulse weak; no appetite. I prescribed the usual treatment and gave an unfavorable prognosis. The next day the animal's condition was much more aggravated, it suffering severe colicky pains and lying down the most of the time. There was a very marked dyspnœa, with a profuse bloody discharge from the nostrils, which was very fœtid in character. The animal died the same night. Being puzzled as to the cause of the abdominal pains I resorted to a post-mortem examination. I found the lungs in very bad condition, they having become gangrenous. The stomach and bowels were comparatively normal and no internal parasites were found. The immediate cause of death was mechanical pneumonia. In searching for what might have been the primary ailment, I incidentally came across a very large mass, the size of a bowling ball, which upon closer observation proved to be the spleen. An incision made into its center disclosed an abscess filled with a semi-fluid and cheesy material. The opportunity up-to-date country veterinarians have for holding

careful post-mortem examinations is superior to that of the city practitioners, and we trust they will endeavor to aid us by reporting all rare and interesting cases, thus making the problem of correct diagnosis more certain."

Dr. D. F. Luckey read a paper on "Œsophogastomiasis." The paper was interesting, and included a report of an outbreak in Missouri and the result of a study made of same. The full report appears in the August number of the monthly bulletin of the State Department of Agriculture and will be sent to anyone who will write to the Secretary of the State Board at Columbia, Mo.

Dr. S. Stewart moved that a committee on diseases be appointed by the President, which was seconded and carried.

Motion was made, seconded and carried that a committee on legislation be appointed, and that they be empowered to make an effort to secure needed veterinary legislation in the coming session.

COMMITTEES FOR THE YEAR.

The committees as appointed by the President-elect for the ensuing year are as follows:

Committee on Diseases—Drs. J. W. Connoway, R. C. Moore, F. W. O'Brien.

Committee on Legislation—Drs. D. F. Luckey, Chas. Ellis, S. Stewart.

Executive Committee—Drs. B. F. Kaupp, L. M. Klutts, Chas. Doerrie.

Committee on Elections—Drs. H. Bradley, T. J. Menestrina, D. F. Luckey.

Committee on Ethics—Drs. Chas Ellis, W. E. Martin, S. Stewart.

Motion made by Dr. Stewart that next meeting be held in Kansas City in August, 1905, seconded and carried. Motion to adjourn seconded and carried. F. F. BROWN, *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Knowles announces the appointment of the following committees for 1904–05:

Executive Committee: C. E. Cotton, Chairman; D. E. Salmon, Roscoe R. Bell, W. H. Hoskins, W. H. Dalrymple, J. R. Mitchell.

Finance Committee: Thos. E. Smith, Chairman; A. H. Baker, J. F. Roub.

Publication Committee: R. P. Lyman, Chairman; T. E. Robinson, E. M. Ranck, W. L. Williams, J. J. Repp.

Intelligence and Education: E. B. Ackerman, Chairman; C. J. Marshall, M. H. Reynolds, N. S. Mayo, G. R. White.

Diseases: C. H. Higgins, Chairman; L. Pearson, V. A. Moore, J. R. Mohler, A. R. Ward.

Army Legislation Committee: Wm. Herbert Lowe, Chairman; Roscoe R. Bell, W. Horace Hoskins, Wm. Henry Kelly, J. H. McNeall.

Resolutions: James Law, Chairman; S. H. Gilliland, J. L. Robertson, W. Dougherty, J. C. Norton.

Necrology: F. Torrance, Chairman; J. F. Winchester, S. H. Ward, J. F. Burnett, J. G. Rutherford.

Programme: S. Stewart, Chairman; A. M. Farrington, J. G. Rutherford, A. Plummer, S. Brenton.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting was held at Dr. Wm. Herbert Lowe's office, 169 Van Houten Street. On Dr. W. H. Lowe, Jr.'s motion, the reading of the minutes was postponed until the next meeting. Dr. W. H. Lowe, Jr., Dr. W. H. H. Doty and Dr. Reagan were appointed a committee to investigate Dr. M. A. Pierce's resignation.

Dues from Dr. M. A. Pierce and Dr. H. K. Berry, amounting to $4, were received.

After the regular business was transacted the members adjourned to Colt's Restaurant, to enjoy a banquet given by Dr. Wm. Herbert Lowe. The following members and associates enjoyed Dr. Lowe's hospitality: Drs. W. H. Lowe, Jr., W. C. Ferguson, T. J. Cooper, Chas. Utz, J. B. Hopper, John Degraw, W. C. Fredericks, W. J. Reagan, T. Earle Budd, Crocker, W. H. H. Doty, Geo. W. Pope, J. Payne Lowe, T. E. Smith, Roscoe R. Bell, W. H. Hoskins and Augustus Berdan.

While dinner was being served Dr. Wm. Herbert Lowe acted as toastmaster and called upon the members for addresses. Dr. Roscoe R. Bell entertained the members with an interesting address on the "American Veterinary Profession"; Dr. Hoskins spoke on the "Scope of the Profession," and Dr. Budd on the "Advancement of the State Association." Dr. Smith's address on "Legislative Action" received the approval of all present. Other members spoke on interesting subjects. A

vote of thanks was extended to Dr. Lowe, and the meeting came to a close with every one satisfied that it was a success in more ways than one. H. K. BERRY, *Secretary.*

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular meeting was held at the Boston Veterinary Hospital, Wednesday evening, Sept. 28, at 8 P. M. There were ten members present, President Beckett in the chair. Minutes of previous meeting accepted as read. One application for membership was received.

An interesting report of the doings at the meeting of the American Veterinary Medical Association was given by Drs. Winchester, Beckett, and Winslow.

It was voted that the President and Secretary have power to change the date of the next meeting in anticipation of the arrival of Dr. Robert Ostertag, and arrangements made for his entertainment.

A copy of the following resolutions adopted at the late meeting of the American Veterinary Medical Association was read:

"It was moved and seconded to recommend the following preamble and resolution:

"WHEREAS, It has come to the knowledge of this Association that a member, Dr. Austin Peters, has officially selected laymen to perform public duties which require the knowledge, skill and judgment of veterinarians, and

"WHEREAS, Said Dr. Austin Peters over his own signature states that he made said appointment from choice;

"*Resolved*, That it is the sense of this meeting that Dr. Austin Peters has knowingly, purposely and officially betrayed the best interest of the veterinary profession and has thereby invited the censure of the American Veterinary Medical Association.

[Signed] "S. Stewart, J. J. Repp, R. R. Bell, J. G. Rutherford, W. Horace Hoskins, M. H. Reynolds, G. W. Dunphy, Wm. Herbert Lowe, Geo. H. Berns, *Executive Committee of American Veterinary Medical Association.*"

This recommendation was presented at the forty-first annual meeting at St. Louis, Aug. 18, of the American Veterinary Medical Association and adopted by a unanimous vote.

Adjourned 10 P. M. F. J. BABBITT, *Secretary.*

MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting was held at Bar Harbor, July 13, 1904, at the home of the Drs. Cleaves.

The afternoon was spent in examining cases in the private practice of Drs. A. W. and L. S. Cleaves, and in sightseeing about the beautiful city of Bar Harbor.

At 7 P. M. all sat down to dinner very kindly provided by Mrs. L. S. Cleaves, and all present voted Mrs. Cleaves a most charming hostess.

The evening was spent in an extended discussion of plans for our new Veterinary Bill to be presented before the coming Legislature.

Meeting adjourned at 10 P. M., to meet in Lewiston in October.

C. L. BLAKELY, *Secretary.*

* * *

The Maine Veterinary Medical Association held its quarterly meeting in Lewiston, Oct. 12th, at the "New De Witt." Members present: Drs. Salley, Englis, Wescott and Blakely.

Dr. Wescott gave a verbal report of the St. Louis meeting, which was very descriptive, and showed that the Doctor must have seen a great deal and thoroughly enjoyed the occasion.

There was a long discussion on our new Veterinary Bill to be presented at our next Legislature and the following committee was appointed: Drs. Pope, Salley, Wescott, R. E. Freeman, F. E. Freeman, L. S. Cleaves, Englis, and Joly. Special meeting of committee and Association was designated for November 9th, 1904, at Waterville, at the residence of Dr. A. Joly.

The next regular meeting of the Association will be held at Augusta, January 11, 1905.

Meeting adjourned at 11 P. M.

C. L. BLAKELY, *Secretary.*

SOCIETY OF COMPARATIVE MEDICINE NEW YORK STATE VETERINARY COLLEGE.

The first meeting of the Society of Comparative Medicine for the college year was called to order at 8 P. M., Friday, Oct. 7th, in the Amphitheatre of the Veterinary College, by Pres. Dimock, who addressed a few introductory remarks particularly to the first-year men, explaining the purposes of the Society and the position of the veterinarian of the present age.

Mr. C. Way followed with a very able discussion on "A

Rapid Method of Diagnosing Rabies," * in which he actually showed by means of prepared slides, the diffused condition of the nerve cells of the rabid animal in comparison to the condensed normal cell; thus checking the results of some of the older investigators.

After a lengthy discussion of various cases by members of the Society, the order of business was taken up; committees appointed, election of fifteen new candidates to membership and meeting adjourned. C. L. ROADHOUSE, *Secretary.*

RUSSIANS SHY ON HORSES.—A despatch from Shanghai says that one of the reasons why General Kuropatkin was forced to abandon and destroy his vast stores at Liaoyang was the want of transport, due to the non-arrival of thousands of horses there. These animals had to rest at the depots at various stages of the journey. They were found to be susceptible to a disease from which the local horses were fairly exempt. Of 4,000 animals collected at Omsk two months ago 3,000 were suddenly attacked with partial or total blindness, requiring several weeks' treatment. A fearful epidemic of glanders is raging in Manchuria.

A GOVERNMENT BREEDING ESTABLISHMENT.—Dr. D. E. Salmon, Chief of the Bureau of Animal Industry of the United States Department of Agriculture, announces that his department is preparing to go into the horse-breeding business, with a view to developing a breed of American carriage horses from native trotting stock. The department will begin by purchasing a number of trotting-bred mares and at least one stallion, all of the heavy harness type, as foundation stock. These animals will be placed on the farm of the Colorado Experiment Station, and there breeding will be continued until definite information is obtained regarding the result. In addition, the Bureau of Animal Industry proposes making a careful investigation of trotting-bred horses that have been exhibited during recent years in the heavy harness classes at the horse shows, with a view to ascertaining what particular families may be looked to for the production of high-class carriage horses of the fashionable type. To this end Mr. Salmon is now sending out letters to prominent exhibitors who have shown horses in the heavy harness classes, asking for information about the breeding of the animals.—(*The Horse World.*)

* The details of this method will be found in the October, 1904, REVIEW.

NEWS AND ITEMS.

REVIEW readers are urgently requested to send in for publication personal items of news concerning themselves or their professional friends; legislation; extraordinary circumstances encountered in practice; or any news that is calculated to interest their fellow-readers. It is confidently believed that by a greater concert of action in this direction all will be benefited, and that this publication will thus be rendered a better medium of communication between its large family of professional readers. Its circulation is now much greater than was ever accorded to a veterinary publication in America, and it is the desire of the publishers to make it more acceptable with each issue.

I CONSIDER THE REVIEW INVALUABLE, and I must not miss a number."—(*D. J. Roseboom, V. S., Chillicothe, Ohio.*)

DR. M. H. REYNOLDS, of Minnesota, has been taking his vacation, judging horses at his State and various county fairs.

DR. W. H. WILKENSON, O. V. C., '94, has moved to Holly and taken the practice of the late Dr. W. B. Austin. He moved from Almont, where he has been for a number of years.

EARLE C. STEVENSON, B. Sc., M. A., of the Zoölogical Laboratory, B. A. I., is the author of Circular No. 47, "A New Parasite (*Strongylus quadriradiatus*) Found in the Pigeon."

DR. J. S. GRANT, of Portland, Mich., has returned to the same place and resumed practice after a year or so absence trying practice in another State. Michigan is good enough yet, as the profession is not crowded by qualified practitioners.

DR. THOS. FARMER, of Grand Blanc, Mich., has received the appointment on the State Veterinary Board, taking the place of Dr. H. F. Palmer, the latter not caring to accept reappointment owing to his absence from the State on duty in the West for Parke, Davis & Co.

VETERINARIANS, do not give up hope for *our* profession, for we evidently are not alone in our efforts to eliminate quackery. The New York *Evening World*, of Oct. 12th, quotes Champe S. Andrews, counsel for the Medical Society of the County of New York, as saying that there are twenty thousand charlatans illegally practicing (human) medicine and the healing art in New York City.

DR. HENRY HAYNES, partner of Drs. H. and W. A. Haynes, Jackson, Michigan, having accidentally come in contact in a dark stable with a broncho having hydrophobia, and believing the germ from the animal's mouth to have passed into his hand through an abrasion, took the Pasteur treatment at the Univer-

sity of Michigan, Ann Arbor, Mich., and is in active practice again.

"IT is with great pleasure I renew my subscription to the REVIEW. I find so much valuable information in it from cover to cover that I could not do without it. Please find enclosed express order for three dollars subscription for the year ending October, 1905. I trust this will reach you in time, as I do not want to miss a copy."—(*H. J. Johnston, V. S., Coutts, Alta, Canada.*)

DESTROYING PRAIRIE DOGS.—The Nebraska Experiment Station has just issued Bulletin No. 86. It contains a report of experiments previously conducted in the use of poisons for destroying prairie dogs, and the results obtained recently in fumigating with some very cheap substances. The bulletin may be obtained free of cost by Residents of Nebraska upon writing to the Agricultural Experiment Station, Lincoln, Nebr.

DOG DIED WITH HIS MASTER.—Lying side by side, Alexander Perot, of Sixteenth and Wolf Streets, and his faithful dog were both found dead yesterday by his daughter. Perot had been ill for some time, and it is believed that while temporarily insane, as a result of the sickness, he determined on suicide and turned on the gas. The faithful dog refused to leave his master, and both fell victims to the deadly fumes.—(*Philadelphia Record.*)

HIGH PRICED EQUINES.—"Hamburg," the famous stallion for whom Harry Payne Whitney paid at auction $70,000 one day in October, has been sent to his new breeding establishment at Brookdale, New Jersey. Mr. Whitney also bought "Sandringham" for $14,000, "Endurance by Right" for $16,000 and "Handspun" for $22,000. Forty-one head at Madison Square Garden that day brought $224,750. (W. H. L.)

A PIGEON-EATING HORSE.—*Jersey City, Oct. 10.*—Dr. Josiah Hornblower, who keeps a drug store at Central Avenue and Griffiths Street, Jersey City, recently caught his old horse "Bill" in the act of eating a pigeon, feathers and all, in his stall. "Bill" had killed the bird with a vicious kick while it was picking up oats. The discovery of pigeon's feathers in the stall on several occasions since then led the doctor to believe that "Bill" is fast becoming a carnivorous animal. The horse has several times eaten beef stew which had been placed in the yard for the watch dog's dinner.

A NEW BUTTER-PRODUCING RECORD.—A Holstein-Freisian cow, owned by H. D. Roe, of Sussex County, New Jersey, has just sprung into fame as having surpassed the world's butter re-

cord. This cow yielded 2,640.25 pounds of milk in thirty days. As a gallon of milk weighs about eight pounds, her product in thirty days was 380 gallons, or eleven gallons a day. The butter produced for twenty-eight days, or four weeks, was 129.907 pounds, or an average of thirty-two and one-half pounds a week. At this rate the cow would produce in the fifty-two weeks of the year, 1,703 pounds of butter, or from 300 to 400 pounds more than she weighs. When she is in milking condition her weight is between 1,300 and 1,400 pounds. The best previous butter record was made over a year ago by a cow in Oneida County, N. Y., that produced thirty and five-eighths pounds in seven days. (W. H. L.)

THE MANY-SIDED LOWE.—Dr. Wm. Herbert Lowe recently caused a good deal of surprise and mental speculation on the part of the public by buying a block of valuable property in the city of Paterson opposite the Paterson General Hospital buildings. Dr. Lowe now sets the public mind at rest by announcing that he bought this property in behalf of the Paterson General Hospital and that it is to be the site of the Nurse's New Home, a magnificent building soon to be erected. The veterinary profession is pleased that this important institution, conducted for the alleviation of human suffering, appreciates the value of the services of the qualified veterinarian enough to retain him on the Board of Managers. Dr. Lowe has been a member of the Board of Managers of the Paterson General Hospital for a number of years and has been instrumental in accomplishing much good during his term of office.

RAVAGES OF RABIES.—As a result of a report received from the Pasteur Institute, two cows and two dogs were killed on Monday at the home of George H. Williams, a wealthy resident of Summit, N. J., making a total of five animals lost by Mr. Williams as a result of a raid by a mad dog in that locality about ten weeks ago. It was not known that the dog had attacked any of Mr. Williams' animals until about two weeks ago, when a horse, the pet of his daughter, developed symptoms of hydrophobia. Before the horse was finally fastened in the stable it had bitten two cows and attempted to bite the coachman. Dr. E. J. Rowe, a veterinarian, pronounced it rabies, and the horse was shot. The animal's brain was then examined and the diagnosis confirmed. Mr. Williams immediately ordered that both cows be shot, and, to avoid any possibility of future trouble, he decided also to destroy the two dogs.—(*New York Herald, Oct. 17.*)

BACTERIA ESSENTIAL TO ANIMAL LIFE.—Some recent experiments performed in France by Dr. Charrin and communicated to the Paris Academy of Sciences by Prof. Bouchard, add further proof to the fact that certain bacteria are not only beneficial, but positively essential to animal life, and that there are limits beyond which it is not desirable to carry the sterilization of food. In Dr. Charrin's experiments a number of rabbits were fed with vegetables which had been thoroughly sterilized so as to destroy any organisms. These rabbits soon acquired enteric diseases caused by the non-assimilation of the antiseptically treated food, while other rabbits kept under similar conditions, but fed with vegetables which, after sterilization, were impregnated with bacilli from a broth culture, were found to flourish and fatten. The investigator believes, as a result of his experiments, that the idea that food for human beings free from bacteria is superior is fallacious, and that certain bacteria are essential for the proper exercise of the digestive functions.—(*Harper's Weekly.*)

OPENING OF THE VETERINARY DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.—The opening of the Veterinary Department of the University of Pennsylvania took place on Sept. 30th. These exercises were held in the University chapel as part of the opening exercises of the Medical and allied schools of the University. Addresses were delivered by Dr. Charles C. Harrison, Provost of the University, and by Dr. Leonard Pearson, Dean of the Veterinary Department. The entering class numbers 35 students, and the total number of students is 85. The practical instruction in pathology, materia medica, pharmacy, botany, physiology and biology will be given in the new medical laboratories which were dedicated last June. This laboratory building was established at a cost of $750,000.00 and is the finest in the world. Instruction in histology and embryology will be given in the old medical hall, the upper floor of which has been turned over to the anatomical department of the University. The instruction in chemistry will be given in what is known as the old dental hall, which is now used almost exclusively by the department of medical chemistry.

DR. BUTLER TO REMAIN IN NORTH CAROLINA.—Dr. Tait Butler, State Veterinarian for the North Carolina Department of Agriculture, is to stay in North Carolina. Four or five weeks ago the Agricultural Department of Cuba, being in need of a man enterprising and well equipped to take charge of the department of animal industry and veterinary science for the

Central Experiment Station of Cuba, offered this position to Dr. Butler, with a good salary and house furnished. The Cuban officials also offered to give him two assistants in his work and an annual experimental fund of $10,000. For a time it looked as if the State would lose Dr. Butler, but the members of the Board of Agriculture, realizing the great value of his services, last week voted him an increase in his salary and he has agreed to continue in charge of the work here which he has conducted with so much ability for the last three years. Dr. Butler has done a great work in his campaign against the cattle tick, freeing Western counties from Federal quarantine restrictions. He is not only one of the most efficient men ever connected with our Department of Agricuiture, but he is one of the most likeable men to be found anywhere—a whole-souled, well-rounded, good-natured, wide-awake man. Those who have the good fortune to know him personally are to be congratulated, as the State is to be congratulated on his decision to remain with us.—(*The Progressive Farmer, Aug. 9.*)

CONNECTICUT IN LINE FOR A VETERINARY LAW.—The three-year standard and State examination now required of veterinary graduates for license to practice in Pennsylvania, New York, New Jersey and some other States, is driving unqualified and unworthy practitioners to neighboring States to such an extent that laws are likely soon to be passed in these States to protect the public from such imposition. One of the States to first seriously feel the ill effect of this sort of thing is Connecticut, but she has already taken the matter in hand, through her State Veterinary Medical Association, in such a manner and with such a determination, that the abuse is likely to be checked by legislative enactment at the coming session of her legislature. Upon solicitation of the Connecticut Veterinary Medical Association, Dr. William Herbert Lowe, author of the New Jersey law and President of the New Jersey State Board of Veterinary Medical Examiners, journeyed to Hartford on October 11 and met with the Committee on Legislation. Every member of the Committee, as well as the President and the Secretary of the State Association, was present at the Hartford meeting. The proposed legislative bill was put in shape and approved by the Committee. The members on the Legislation Committee are all veterinarians of high standing and influence in Connecticut and it will be strange indeed if the bill is not put on the statute books of that Commonwealth during the coming session of the legislature.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table will be found the dates, places of meeting, and Secretaries' names and addresses of all the Veterinary Medical Associations of the United States and Canada, so far as obtainable by the REVIEW. Secretaries are urgently requested to see that the organizations which they represent are properly included in the list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	.....	.....	J. J. Repp, 5249 Addison St., Phila., Pa.
Vet. Med. Ass'n of N. J.....	Jan. 14, 1905.	Newark.	G. W. Pope, Athenia, N. J.
Connecticut V. M. Ass'n.....	1st Tu. Feb., '05.	Hartford.	B. K. Dow, Willimantic.
New York S. V. M. Soc'y....	September, 1905	Ithaca.	W. H. Kelly, Albany, N. Y.
Schuylkill Valley V. M. A....	Reading.	Dec. 21, 1904.	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Nov. 1, 1904.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n...	.....	....	H. D. Paxson, Ft. Worth.
Massachusetts Vet. Ass'n.....	Monthly.	Boston.	F. J. Babbitt, Lynn, Mass.
Maine Vet Med. Ass'n.....	Jan. 11, 1905.	Augusta.	C. L. Blakely, Augusta.
Central Canada V. Ass'n.....	.....	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n...	.....	.....	Judson Black, Richmond.
Alumni Ass'n N. Y.–A. V. C..	April, 1905.	141 W. 54th St	W. C. Miller, N. Y. City.
Illinois State V M. Ass'n.....	December.	Chicago.	W. H. Welch, Lexington, Ill
Wisconsin Soc. Vet. Grad.....	Call of Pres't.	Racine.	S. Beattie, Madison.
Illinois V. M. and Surg. A....	.....	.....	W. A. Swain, Mt. Pulaski, Ill
Vet. Ass'n of Manitoba	.....	.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n...	.....	.....	T. B. Carroll, Wilmington.
Ontario Vet. Ass'n.....	December, 1904	Toronto.	C. H. Sweetapple, Toronto.
V. M. Ass'n New York Co....	1st Wed. ea. mo.	141 W. 54th St	D. J. Mangan, N. Y. City.
Ohio State V. M. Ass'n.....	Jan. 17-18, 1905	Columbus.	W. H. Gribble, Washington C. H.
Western Penn. V. M. Ass'n...	1st Wed. ea. mo.	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	August, 1905	Kansas City.	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n...	.....	.....	J. H. Taylor, Henrietta, N. Y.
Iowa State V. M. Ass'n.....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n..	.....	.....	J. G. Annand, Minneapolis.
Pennsylvania State V. M. A...	.....	.....	C. J. Marshall, 2004 Pine St., Phila.
Keystone V. M. Ass'n.....	2d Tuesday of each month.	Philadelphia.	C. J. Marshall, 2004 Pine St., Phila
Colorado State V. M. Ass'n...	1st Mon. in June	Denver.	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n.....	2d Mon. & Tu. Jan. 1905.	Kansas City.	B. F. Kaupp, 3712 Michigan Ave., Kansas City
Rhode Island V. M. Ass'n....	.....	.....	T. E. Robinson, Westerly, R. I
North Dakota V. M. Ass'n....	2d Tues. Jan.	Fargo.	E. J. Davidson, Grand Forks
California State V. M. Ass'n...	Mch. Je. Sep, Dc	San Francisco	P. H. Browning, San Jose.
Southern Auxiliary of California State V. M. Ass'n....	Jan. Apl. Jy, Oct.	Los Angeles.	H. D. Fenimore, Los Angeles
South Dakota V. M. A.....	....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	A. T. Peters, Lincoln.
Kansas State V. M. Ass'n....	January, 1905.	Topeka.	Hugh S. Maxwell, Salina.
Ass'n Médécale Veternaire Francaise "Laval,".....	1st & 3d Thur. of each month.	Lect. R'm Laval Un'y Mon.	J. P. A. Houde, Montreal.
Alumni Association A. V. Col..	April each yr.	New York.	F. R. Hanson, N. Y. City.
Province of Quebec V. M. A...	March, 1905.	Mon. & Que.	Gustave Boyer, Rigand, P. Q.

PUBLISHERS' DEPARTMENT.

Subscription price, $3 per annum, invariably in advance; foreign countries, $3.60; students while attending college, $2; single copies, 25 cents.

Rejected manuscripts will not be returned unless postage is forwarded.

Subscribers are earnestly requested to notify the Business Manager immediately upon changing their address.

THE coughing season has opened up in the equine families early this season, and the veterinary practician in inspecting his shelves to see that he is well stocked with cough mixtures, is reminded of the uniformity of action of GLYCO-HEROIN (Smith).

SPEAKING of uniformity of action, another striking example is CREOLIN-PEARSON.

MIST. ARGENTI COMP. is making many friends throughout the country among the veterinary practicians, and is proving to be a practical, economical and convenient treatment for hock lameness.

THE THERAPEUTIC ACTION OF ANTIPHLOGISTINE is so clearly defined on page 5 (adv. dept.) that its indication in very *many* directions becomes apparent from a theoretical standpoint; and its practical application bears out the theoretical reasoning in a most satisfactory manner.

A VERY VALUABLE ADDITION to the preparations listed by the NORWICH PHARMACAL COMPANY, page 9 (adv. dept.) is "VETRINOL DUSTING POWDER," put up in neat pasteboard boxes with perforated tops. Its formula is similar to veterinary unguentine.

ABBOTT'S ALKALOIDAL PREPARATIONS are a positive essential in canine practice. Their accuracy of dosage, and high standard of medicinal properties, accounting for the uniformity of results obtained from their use.

NEW INDORSEMENTS MONTHLY are sent in on the use of "TALLIANINE" in the treatment of chest diseases, influenza, purpura, etc., in horses, and they are doubly interesting, because they are charts filled in by the practician daily, during the treatment of the patient; marking the course of the disease under the administration of the preparation.

PRACTICE FOR SALE.

A good mixed country practice for sale, near New York City with $2,000 yearly; to a good man will sell for $200 cash. For full particulars apply to A. B. C., care of *American Veterinary Review*, 509 West 152nd St., New York.